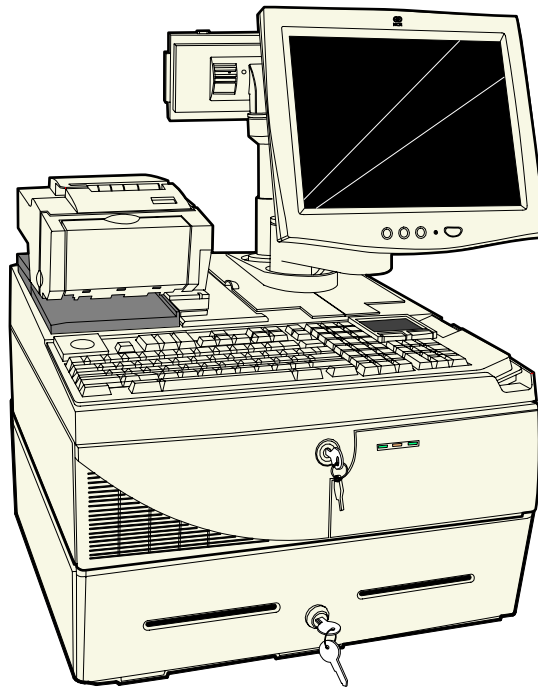


NCR RealPOS™ 7458

Release 1.0

Hardware Service



B005-0000-1442

Issue A

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Manager, Information Products
NCR Corporation
2651 Satellite Blvd.
Duluth, GA 30096

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Preface

Audience

This book is written for hardware installer/service personnel, system integrators, and field engineers.

Notice: This document is NCR proprietary information and is not to be disclosed or reproduced without consent.

Safety Warnings

Servicing

Caution: This product does not contain user serviceable parts. Servicing should only be performed by a qualified service technician.

Fuse Replacement

Caution: For continued protection against risk of fire, replace only with the same type and ratings of fuse.

Attention: Pour prévenir et vous protéger contre un risque de feu, remplacer la fusible avec une autre fusible de même type, seulement.

Power Supply Cord Used as Disconnect Means

Caution: The power supply cord is used as the main disconnect device. Ensure that the socket outlet is located/installed near the equipment and is easily accessible.

Attention: Le cordon d'alimentation est utilisé comme interrupteur général. La prise de courant doit être située ou installée à proximité du matériel et être facile d'accès.

Lithium Battery Warning

Caution: Danger of explosion if battery is incorrectly replaced. Replace only with the same or equivalent type as recommended by the manufacturer. The battery is battery is recyclable. At the end of its useful life, under various state and local laws it may be illegal to dispose of this battery into the municipal waste. Contact officials for recycling options or proper disposal.

Attention: Il y a danger d'explosion s'il y a remplacement incorrect de la batterie. Remplacer uniquement avec une batterie du même type ou d'un type recommandé par le constructeur. Mettre au rebut les batteries usagées conformément aux instructions du fabricant.

Battery Disposal (Switzerland)

Refer to Annex 4.10 of SR814.013 for battery disposal.

IT Power System

This product is suitable for connection to an IT power system with a phase-to-phase voltage not exceeding 240 V.

Peripheral Usage

This terminal should only be used with peripheral devices that are certified by the appropriate safety agency for the country of installation (UL, CSA, TUV, VDE) or those which are recommended by NCR Corporation.

Caution: DO NOT connect or disconnect a printer, keyboard, or any other terminal-powered peripheral while the terminal is powered on. Doing so may result in peripheral or system damage.

Environmental Consciousness

NCR is demonstrating its concern for the environment by designing an intelligent power management system into this terminal that operates efficiently whether the system is in a stand-alone or network environment.

Grounding Instructions

In the event of a malfunction or breakdown, grounding provides a path of least resistance for electric current to reduce the risk of electric shock. This product is equipped with an electric cord having an equipment-grounding conductor and a grounding plug. The plug must be plugged into a matching outlet that is properly installed and grounded in accordance with all local codes and ordinances. Do not modify the plug provided – if it will not fit the outlet, have the proper outlet installed by a qualified electrician. Improper connection of the equipment-grounding conductor can result in a risk of electric shock.

The conductor with insulation having an outer surface that is green with or without yellow stripes is the equipment-grounding conductor.

If repair or replacement of the electric cord or plug is necessary, do not connect the equipment-grounding conductor to a live terminal. Check with a qualified electrician or service personnel if the grounding instructions are not completely understood, or if you are in doubt as to whether the product is properly grounded.

Use only 3-wire extension cords that have 3-prong grounding plugs and 3-pole receptacles that accept the product's plug. **Repair or replace damaged or worn cords immediately.**

References

- *NCR RealPOS 7458 Hardware User's Guide* (B005-0000-1440)
- *NCR RealPOS 7458 Site Preparation* (B005-0000-1441)
- *NCR RealPOS 7458 Parts Identification Manual* (B005-0000-1443)
- *NCR 5932 USB Keyboard User's Guide* (B005-0000-1395)
- *NCR 5932 Wedge Keyboard User's Guide* (BD20-1369-A)
- *NCR 5942 12.1-Inch LCD Monitor User's Guide* (B005-0000-1394)
- *NCR 5953 12.1-Inch DynaKey User's Guide* (B005-0000-1161)
- *NCR 5952 Wedge DynaKey User's Guide* (BD20-1370-A)
- *NCR 5964 12.1-Inch Touch LCD User's Guide* (B005-0000-1324)
- *NCR 5972 2 x 20 Customer Display User's Guide* (B005-0000-1372)
- *NCR 5973 International VFD Customer Display User's Guide* (B005-0000-1162)
- *NCR 5982 5-Inch LCD Operator Display User's Guide* (BD20-1443-A)
- *NCR 7158 Thermal Receipt and Impact Printer Owner's Guide* (B005-0000-1112)
- *NCR 7167 Two-Station POS Printer Owner's Guide* (B005-0000-1406)
- *NCR 7162 Printer Setup & User's Guide* (BD20-1453-A)
- *NCR 7194 Thermal Receipt Printer Owner's Guide* (B005-0000-1097)
- *NCR 7197 Receipt Printer Owner's Guide* (B005-0000-1409)
- *NCR 5945 Electronic Payment Terminal User's Guide* (B005-0000-1104)
- *NCR 5992 Signature Capture User's Guide* (B005-0000-1108)

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Revision Record

Issue	Date	Remarks
A	Feb 2003	First issue

Radio Frequency Interference Statements

Federal Communications Commission (FCC)

Information to User

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause interference in which case the user will be required to correct the interference at his own expense.

NCR is not responsible for any radio or television interference caused by unauthorized modification of this equipment or the substitution or attachment of connecting cables and equipment other than those specified by NCR. The correction of interference caused by such unauthorized modification, substitution or attachment will be the responsibility of the user. The user is cautioned that changes or modifications not expressly approved by NCR may void the user's authority to operate the equipment.

Canadian Department of Communications

This Class A digital apparatus complies with Canadian ICES-003.

This digital apparatus does not exceed the Class A limits for radio noise emissions from digital apparatus set out in the Radio Interference Regulations of the Canadian Department of Communications.

Cet appareil numérique de la classe A est conforme à la norme NMB-003 du Canada.

Le présent appareil numérique n'émet pas de bruits radioélectriques dépassant les limites applicables aux appareils numériques de la classe A prescrites dans le règlement sur le brouillage radioélectriques édicté par le ministre des Communications du Canada.

Voluntary Control Council for Interference (VCCI)

この装置は、情報処理装置等電波障害自主規制協議会（VCCI）の基準に基づくクラスA情報技術装置です。この装置を家庭環境で使用すると電波妨害を引き起こすことがあります。この場合には使用者が適切な対策を講ずるよう要求されることがあります。

International Radio Frequency Interference Statement

Warning: This is a Class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

Declaration of Conformity

Manufacturer's Name	NCR Corporation
Manufacturer's Address	NCR Corporation Retail Solutions Division – Atlanta 2651 Satellite Boulevard Duluth, GA 30096-5810
Type of Equipment	Information Technology Equipment
Model Number	Class 7458
Electrical Ratings (Input)	100-120 V/200-240 V, 2.0 A/1.0 A, 50-60 Hz

NCR Corporation, 1700 South Patterson Boulevard, Dayton, OH 45459, USA, declares that the equipment specified above conforms to the referenced EU Directives and Harmonized Standards.

EU Directive	Harmonized Standard(s)
89/336/EEC (EMC)	EN 55022 EN 55024 EN61003-2 EN61003-3
73/23/EEC (Low Voltage)	EN 60 950

NCR Corporation
Retail Solutions Division – Atlanta
2651 Satellite Boulevard
Duluth, GA 30096-5810

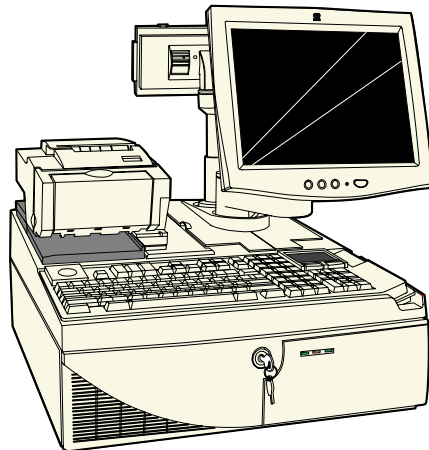
European Contact:
International IP Counsel
206 Marylebone Road
London, NW1 6LY, England

Chapter 1: Product Overview

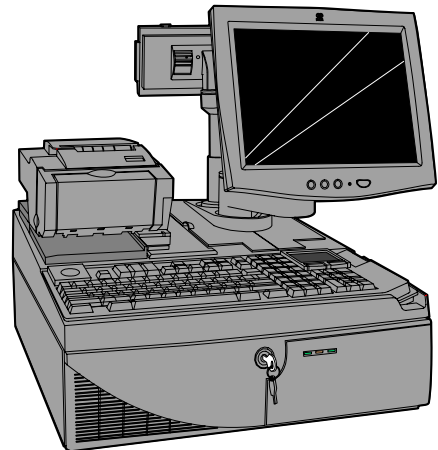
Introduction

The NCR RealPOS 80 (also referred to as NCR 7458) is a powerful, retail-hardened point-of-sale terminal targeted for general merchandise, food and convenience store environments. It provides exceptional scalability utilizing Intel Celeron and Pentium III processors to address a range of price/performance levels and operating system environments. The system offers superior connectivity for retail, with support for legacy peripheral interfaces (RS-232, PS/2, Parallel, and VGA), as well as emerging interface standards such as Powered USB and a DVI video interface.

There are two color schemes available; Beige (G11) and Charcoal Gray (CG1).



Beige (G11)



Charcoal Gray (CG1)

The 7458 is designed with serviceability in mind to reduce costly downtime. It incorporates the latest in serviceability features including tool free serviceability. Specifically, the 7458 incorporates:

- Removable hard drive – The terminal utilizes a front-side removable hard drive that slides easily out of the cabinetry without the use of any tools, which simplifies replacement.
- Slide out motherboard tray – All internal components are quickly accessed and replaced without the aid of tools, which significantly reduces repair times.
- The removable tray results in faster upgrading of memory, hard drive or other internal components.

Cabinet

The cabinet is optimized to accommodate either modular or integrated configurations while providing expandability for future needs. Outstanding flexibility has been designed into the optional integration tray for use with unified configurations. This integration tray supports a variety of NCR's most popular peripheral options.

Internally, the following features are supported:

- 3 PCI slots
- 2 DIMM memory sockets supporting up to 512MB of PC133 SDRAM
- Flex disk drive (standard)
- Dual Hard Disks
- CD ROM drive
- Compact flash memory
- Integrated battery back-up.

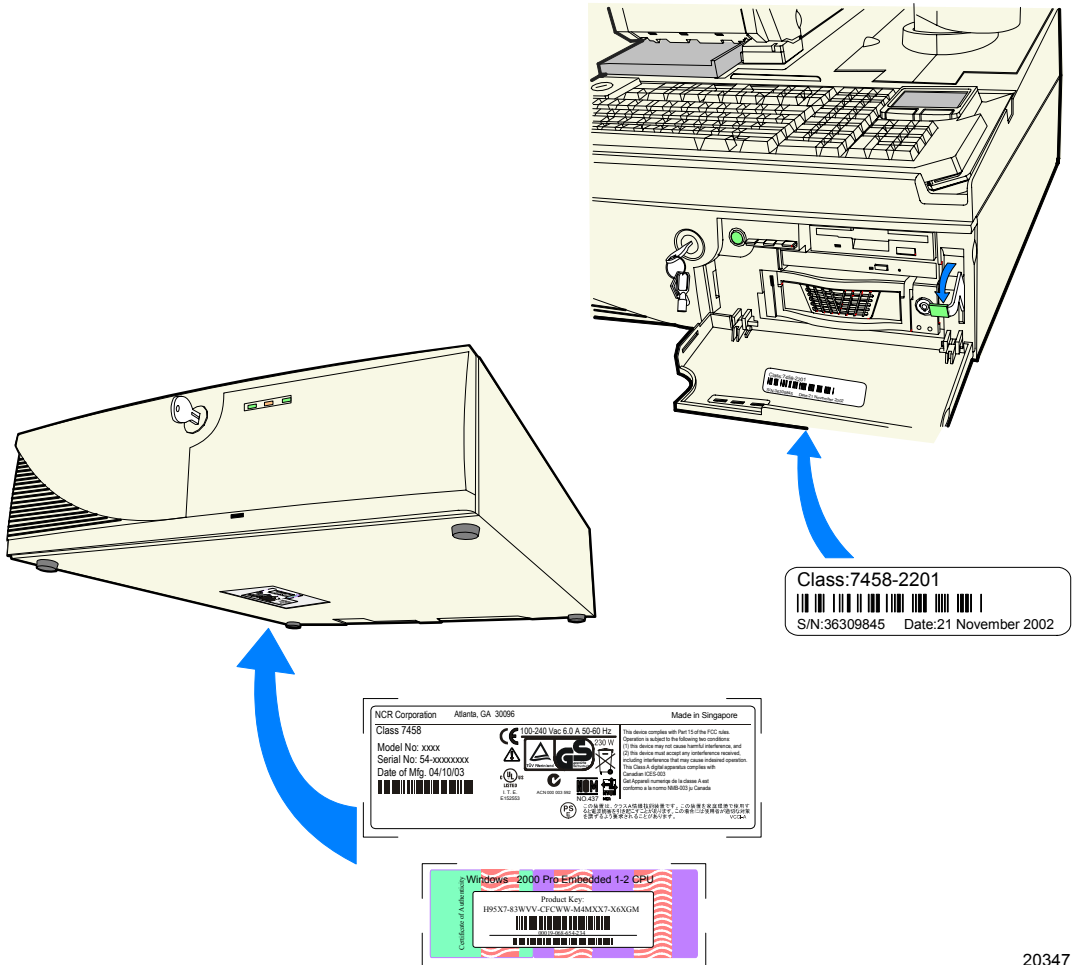
The following table highlights the standard features and options available with the RealPOS 80 base Models:

Major Model	CPU
7458-1110	Intel 850MHz Celeron, 128MB Memory, Flex Disk, 4 RS-232, 4 Powered USB, Audio/Mic. and US Power Cord. (G11)
7458-1111	Intel 850MHz Celeron, 128MB Memory, Flex Disk, 4 RS-232, 4 Powered USB, Audio/Mic. and US Power Cord. (CG1)
7458-1200	Intel 850MHz Celeron, 128MB Memory, Flex Disk, Hard Disk, 4 RS-232, 4 Powered USB, Audio/Mic. and US Power Cords (G11)
7458-1201	Intel 850MHz Celeron, 128MB Memory, Flex Disk, Hard Disk, 4 RS-232, 4 Powered USB, Audio/Mic. and US Power Cords. (CG1)
7458-2200	Intel 1GHz Pentium III, 256MB Memory, Flex Disk, Hard Disk, 4 RS-232 4 Powered USB, Audio/Mic. And US Power Cords. (G11)
7458-2201	Intel 1GHz Pentium III, 256MB Memory, Flex Disk, Hard Disk, 4 RS-232 4 Powered USB, Audio/Mic. And US Power Cords. (CG1)

Label Locations

The serial number and model number are included on a label, which is located on the bottom of the Electronics Box Tray, which can be seen through a rectangular hole in the bottom of the cabinet. If the terminal was shipped with an Operating System pre-installed then there is also a Certificate of Authenticity label.

Note: The serial number is repeated on the inside of the Front Security Door.



Chapter 2: POST Diagnostics

Power-On Self-Test (POST) Errors

Whenever a recoverable error occurs during POST, the BIOS displays an error message describing the problem.

If a system boot is incomplete (for example, the system is turned off while it is going through the POST), then the next time the system is powered on you may get a message stating that the previous boot was incomplete. The BIOS will revert to *safe* values for the chip set, caches, I/O components, etc. This provides the best possibility of returning to the Setup routine and to normal functioning, but these values do not always produce maximum system performance. To achieve maximum performance after the BIOS has reverted to *safe* values, re-enter Setup and select the maximum performance values.

If, for example, the terminal was simply turned off during POST, you can return to the maximum performance values by simply entering Setup and exiting or by rebooting.

During POST, you are asked to press <F1> and boot with the default configuration. If you simply presses <F1> and then do not later return to Setup, the system will boot; but the external cache will not be enabled, even though the default configuration will enable the cache.

Recoverable POST Errors

Whenever a recoverable error occurs during POST, the BIOS displays an error message describing the problem. If the *Beep Error Codes* option is set to **ON** in BIOS Setup, a series of 2 beeps is issued followed four (4) groups of 1 to 4 tones. These tones correspond to a specific Recoverable POST Error. The table below indicates this correlation. These Beep Codes are to assist in understanding an error in the case where the primary display is non-functional or a non-LCD/CRT.

Error and Beep Codes

The following is a list of the checkpoint codes written at the start of each test and the beep codes issued for terminal errors. Not all Test Points are issued by all of the systems. If no beeps are issued for that code, the *Beeps* column remains blank. In such cases, rely on the on-screen information.

Beeps	Error Message	Corrective Action
Disk Errors		
1-1-1-1	0200: Failure Fixed Disk	Check cable/Replace hard disk
Keyboard Errors		
1-2-1-1	0210: Stuck Key	Replace Keyboard
1-2-1-2	0211: Keyboard error	Replace Keyboard
1-2-1-3	0212: Keyboard Controller Failed	Replace Keyboard
1-2-1-4	0213: Keyboard locked - Unlock key switch	Replace Keyboard/Unlock keyboard

Beeps	Error Message	Corrective Action
Video Errors		
1-3-1-1	0220: Monitor type does not match CMOS - Run SETUP	Should not happen, unless CMOS is corrupted. Default Parameters in Setup.
Memory Errors		
1-4-1-1	0230: System RAM Failed at offset:	Replace Memory module
1-4-1-2	0231: Shadow Ram Failed at offset:	Replace Memory module
1-4-1-3	0232: Extended RAM Failed at address line:	Replace Memory module
1-4-1-4	Memory type mixing detected.	Replace Memory module
1-4-2-1	Single-bit ECC error occurred.	Replace Memory module
1-4-2-2	Multiple-bit ECC error occurred.	Replace Memory module
CMOS Errors		
2-2-1-1	0250: System battery is dead - Replace and run SETUP	Replace CMOS battery
2-2-1-2	0251: System CMOS checksum bad - Default configuration used	Run Setup
Timer Errors		
2-3-1-1	0260: System timer error	Replace Motherboard
Real Time Clock Errors		
2-4-1-1	0270: Real time clock error	Replace Motherboard

Beeps	Error Message	Corrective Action
2-4-1-2	0271: Check date and time settings	Set Time and Date
Configuration Errors		
3-1-1-1	0280: Previous boot incomplete - Default configuration used	
3-1-1-2	0281: Memory Size found by POST differed from EISA CMOS	Possible Hardware problem with Motherboard or memory
Diskette Errors		
3-4-1-1	02B0: Diskette drive A error	Replace drive or correct setup to reflect no drive
3-4-1-2	02B1: Diskette drive B error	Replace drive or correct setup to reflect no drive
3-4-1-3	02B2: Incorrect Drive A type - run SETUP	Replace drive or correct setup to reflect no drive
3-4-1-4	02B3: Incorrect Drive B type - run SETUP	Replace drive or correct setup to reflect no drive
Cache Errors		
4-2-1-1	02D0: System cache error - Cache disabled	Replace Cache module/Motherboard
Other Errors		
4-4-1-1	02F0: CPU ID:	Replace CPU
4-4-2-1	02F4: EISA CMOS not writeable	Replace Motherboard
4-4-2-2	02F5: DMA Test Failed	Replace Motherboard
4-4-2-3	02F6: Software NMI Failed	Replace Motherboard
4-4-2-4	02F7: Fail-safe Timer NMI Failed	Replace Motherboard

Beeps	Error Message	Corrective Action
4-4-3-1	02F8: CPU over temperature error	Check/replace Fan, Check air vents, etc
4-4-3-2	02FA: Cannot read CPU temperature	Check/replace Fan, Check air vents, etc.
4-4-3-3	02FA: Cannot read CPU temperature	Replace Motherboard
4-4-3-4	02FB: Cannot read System temperature	Replace Motherboard
4-4-4-1	02FC: SMB Connect Failed	Replace Motherboard
4-4-4-2	02FD: SMB clock chip initialization failed	Replace Motherboard
4-4-4-3	02FE: Battery not installed	Install Battery

The BIOS also can issue the following beep codes during POST:

- One long tone followed by three short tones if the video configuration fails.
- One long tone followed by two short tones if an external ROM module does not properly checksum to zero.

An external ROM module (LAN or Video board) can also issue audible errors, usually consisting of one long tone followed by a series of short tones.

Terminal POST Errors

There are several POST routines that issue a **POST Terminal Error** and shut down the system if they fail. Before shutting down the system, the terminal-error handler issues a beep code signifying the test point error, then writes the error to port 80h and attempts to initialize the video. The handler writes the error in the upper left corner of the screen (using both mono and color adapters). The routine derives the beep code from the test point error as follows:

1. The 8-bit error code is broken down to four 2-bit groups.
2. Each group is made one-based (1 through 4) by adding 1.
3. Short beeps are generated for the number of times in each group.

Example: Test point 01Ah = 00 01 10 10 = 1-2-3-3 beeps

Test Points and Beep Codes

At the beginning of each POST routine, the BIOS outputs the test point error code to I/O address 80h. Use this code during troubleshooting to establish at what point the system failed and what routine was being performed.

If the BIOS detects a terminal error condition, it halts POST after issuing a terminal error beep code (see previous section) and attempting to display the error code on upper left corner of the screen and on the port 80h LED display.

If the system hangs before the BIOS can process the error, the value displayed at the port 80h is the last test performed. In this case, the screen does not display the error code.

Chapter 3: Hardware Service

Introduction

This chapter discusses procedures for disassembling the 7458 hardware for servicing. Topics include:

- Safety requirements
- Back Panel Cable connectors
- Disassembly procedures
- Board strapping information

Safety Requirements

Caution: This product does not contain user serviceable parts. Servicing should only be performed by a qualified service technician.

Fuse Replacement

Caution: For continued protection against risk of fire, replace only with the same type and ratings of fuse.

Attention: Pour prévenir et vous protéger contre un risque de feu, remplacer la fusible avec une autre fusible de même type, seulement.

Lithium Battery Warning

Caution: Danger of explosion if battery is incorrectly replaced. Replace only with the same or equivalent type as recommended by the manufacturer. Discard used batteries according to the manufacturer's instructions.

Attention: Il y a danger d'explosion s'il y a remplacement incorrect de la batterie. Remplacer uniquement avec une batterie du même type ou d'un type recommandé par le constructeur. Mettre au rebut les batteries usagées conformément aux instructions du fabricant.

Battery Disposal (Switzerland)

Refer to Annex 4.10 of SR814.013 for battery disposal.

IT Power System

This product is suitable for connection to an IT power system with a phase-to-phase voltage not exceeding 240 V.

Peripheral Usage

This terminal should only be used with peripheral devices that are certified by the appropriate safety agency for the country of installation (UL, CSA, TUV, VDE) or those which are recommended by NCR Corporation.

Caution: DO NOT connect or disconnect a printer, keyboard, or any other terminal-powered peripheral while the terminal is powered on. Doing so may result in peripheral or system damage.

Grounding Instructions

In the event of a malfunction or breakdown, grounding provides a path of least resistance for electric current to reduce the risk of electric shock. This product is equipped with an electric cord having an equipment-grounding conductor and a grounding plug. The plug must be plugged into a matching outlet that is properly installed and grounded in accordance with all local codes and ordinances. Do not modify the plug provided – if it will not fit the outlet, have the proper outlet installed by a qualified electrician. Improper connection of the equipment-grounding conductor can result in a risk of electric shock.

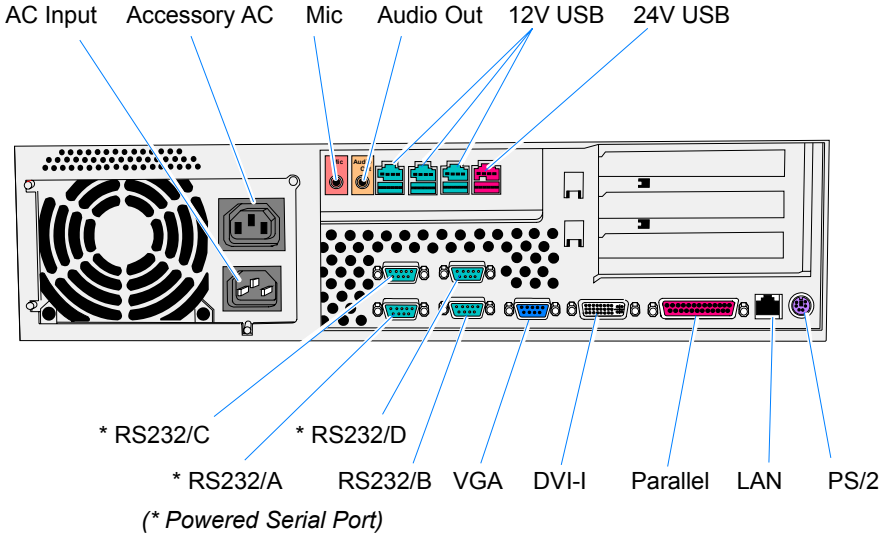
The conductor with insulation having an outer surface that is green with or without yellow stripes is the equipment-grounding conductor.

If repair or replacement of the electric cord or plug is necessary, do not connect the equipment-grounding conductor to a live terminal. Check with a qualified electrician or service personnel if the grounding instructions are not completely understood, or if you are in doubt as to whether the product is properly grounded.

Use only 3-wire extension cords that have 3-prong grounding plugs and 3-pole receptacles that accept the product's plug. **Repair or replace damaged or worn cords immediately.**

Back Panel Cable Connectors

The following illustrations identify the Back Panel connectors. The optional USB Daughter Card has three 12V USB+ connectors, one 24V USB+ connector, and Audio connectors.



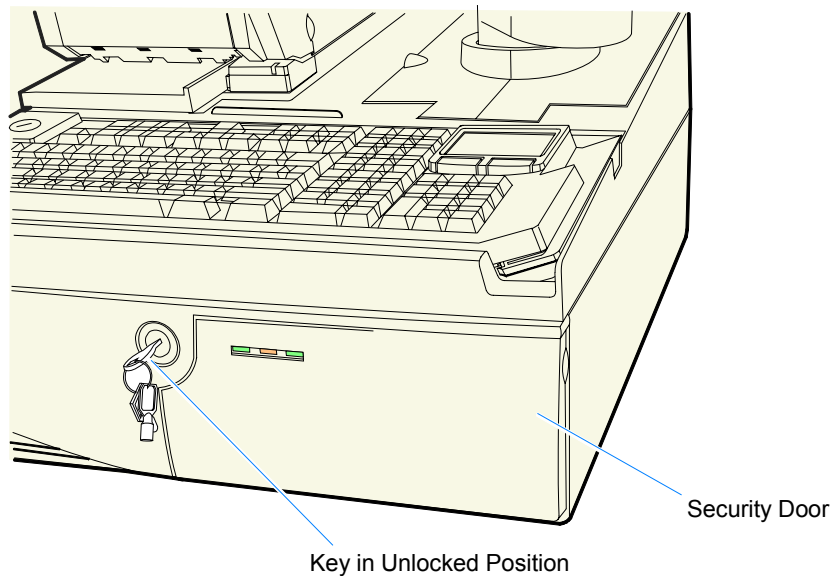
Electronics Box Disassembly Procedures

This section explains how to disassemble the 7458 for service purposes.

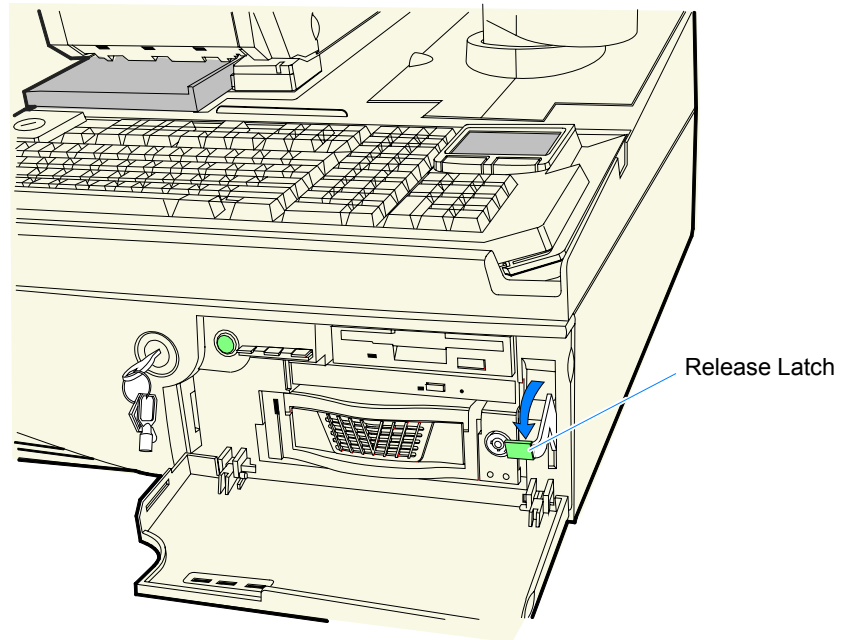
Warning: Disconnect the AC power cord before disassembling the Terminal.

Removing the Electronics Tray

1. Disconnect all cables from the back of the Electronics Box.
2. Turn the Security Door Key to the unlocked position.

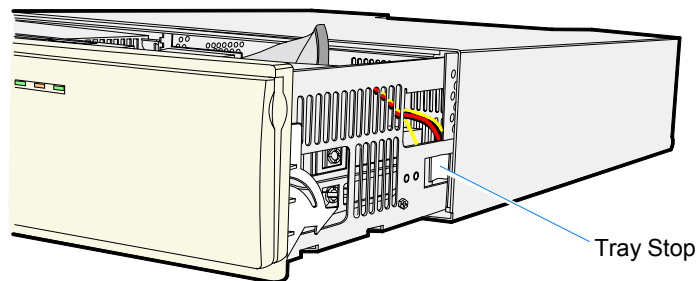


3. Open the Security Door.
4. Pull the Release Latch forward to release the Electronics Tray.



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5. Slide the Electronics Tray out of the cabinet. About half way out there is a Tray Stop on the side of the tray. Press in on the stop to remove the Electronics Tray from the cabinet.



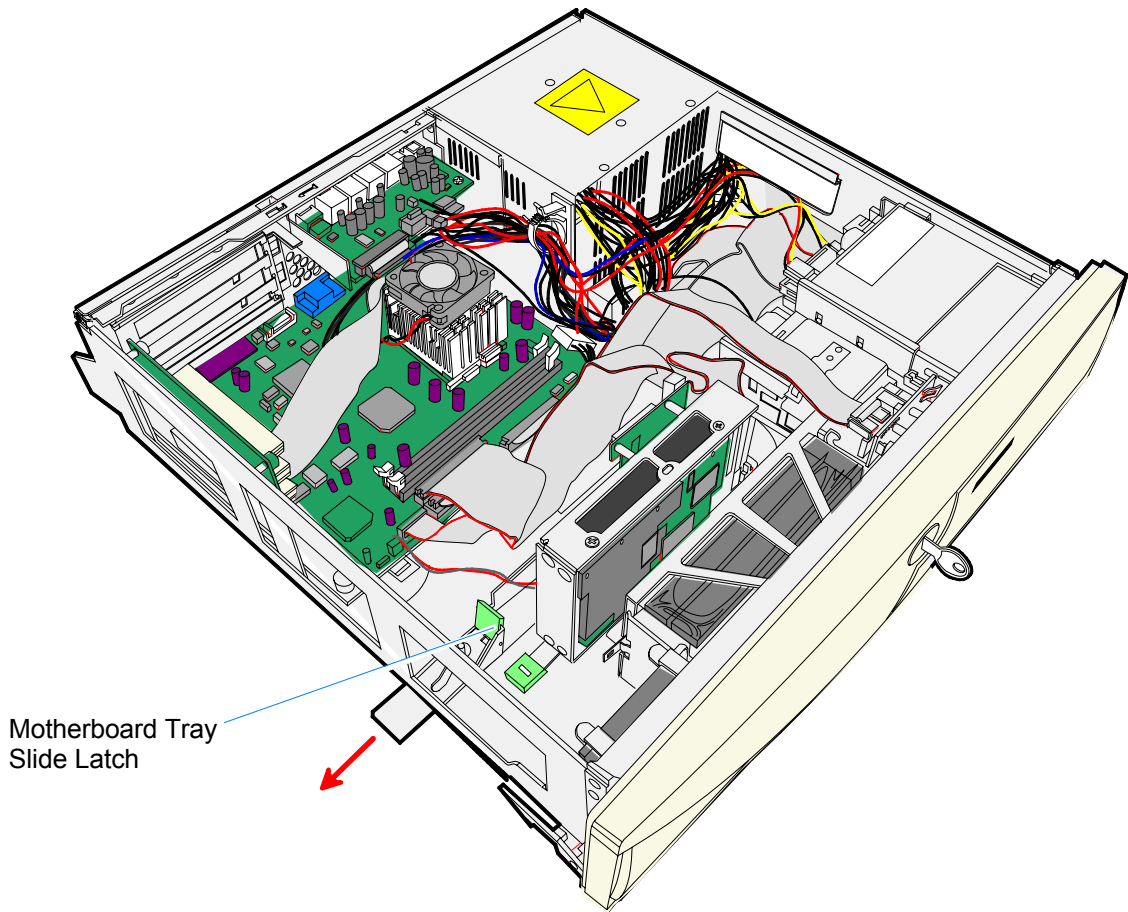
20348

Replacing the Electronics Tray

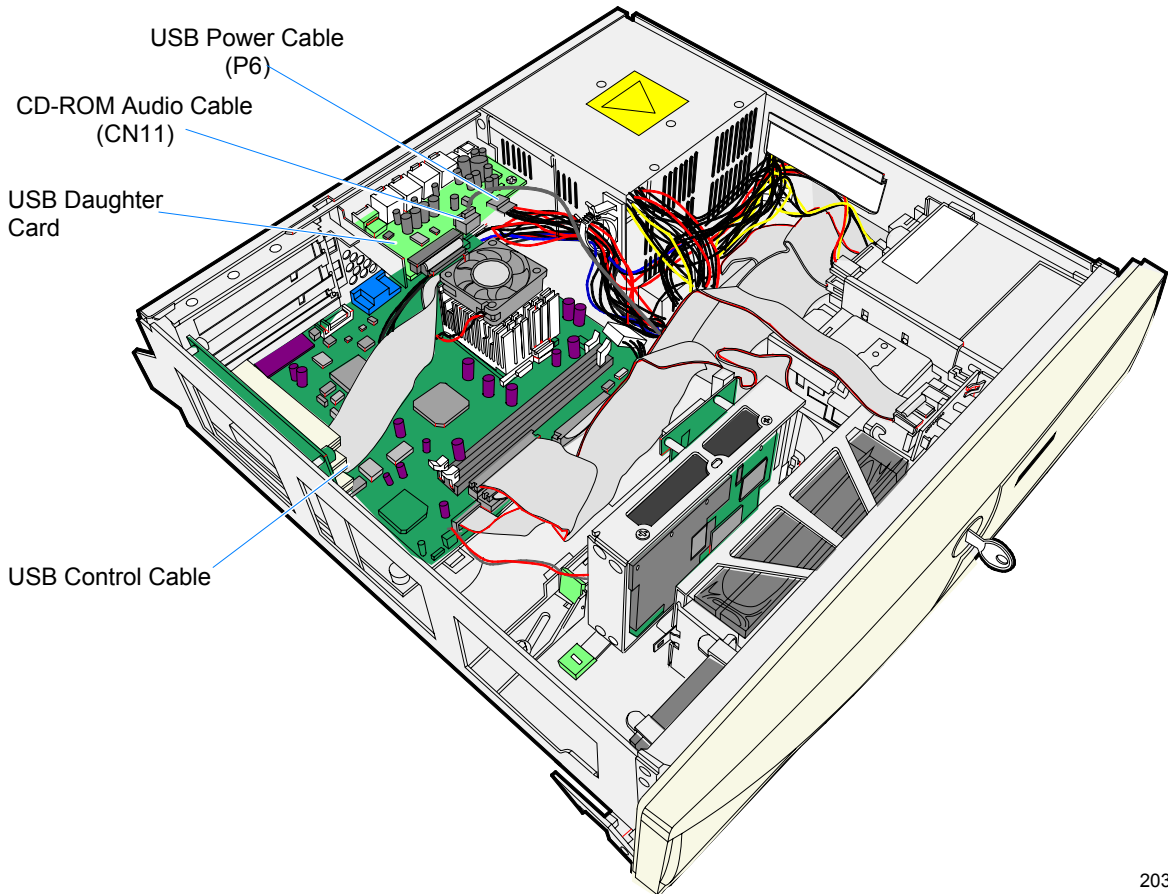
Slide the Electronics Tray into the cabinet until it latches. Make sure the Release Latch is completely closed in the lock position.

Removing the Motherboard

1. Release the Motherboard Tray Slide Latch and slide the tray toward the front of the terminal.



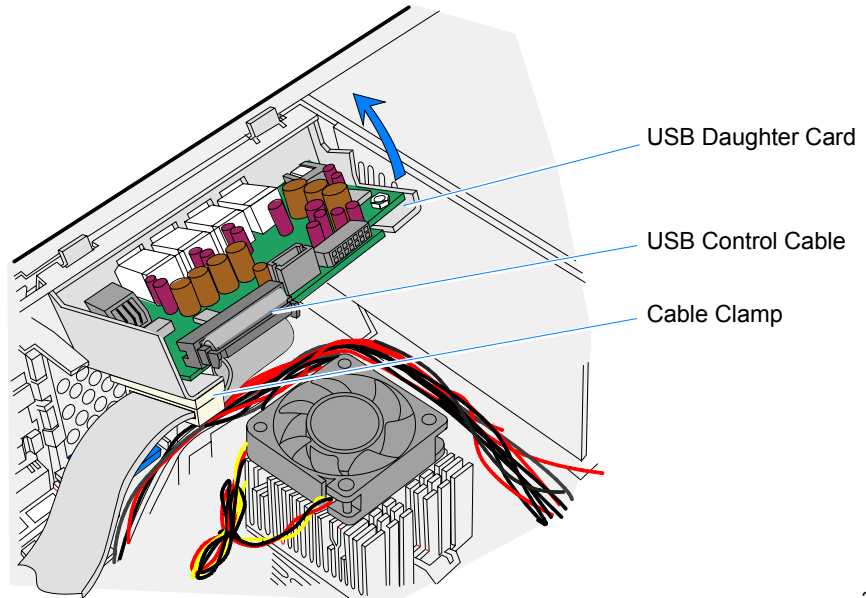
2. Remove the USB Daughter Card.
 - a. Disconnect the USB Power Cable (P6) and the CD-ROM Audio Cable (CN11, if present) from the USB Daughter Card.
 - b. Disconnect the USB Control Cable from the Motherboard.



20319

Note: When replacing the Daughter Card be sure to clamp the USB Power Cable to the Power Supply as shown above.

- c. Remove the USB Daughter Card by lifting up on it and then pivoting it out as shown below.



20349

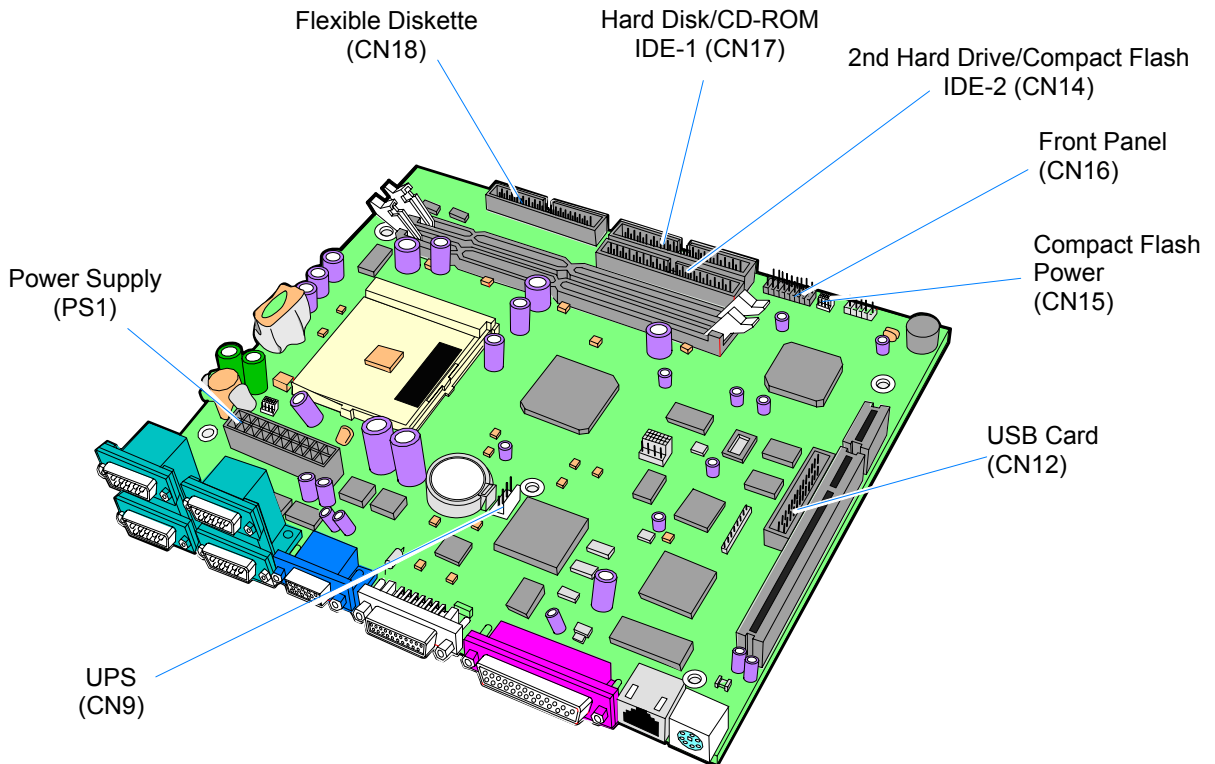
Replacing the USB Daughter Card

Note: The USB Daughter Card service assembly includes the bracket.

- a. Insert the two extensions on the bracket into the slots in the Motherboard Chassis, pivot the assembly level, and push it down to lock it in place.
- b. Connect the USB Control Cable to the Motherboard.

3. Use the illustration below for reference (Sheet Metal Tray not shown). Disconnect the following cables from the Motherboard.

- Front Panel Switch Cable (CN16)
- Hard Disk Interface Cable (CN17)
- Flexible Diskette Interface Cable (CN18)
- UPS Control Cable (CN9)
- Main Power Supply Connector (PS1)
- CD-ROM/Flash Interface Cable (if applicable) (CN14)
- Compact Flash Power Cable (if applicable) (CN15)



19719a

4. Remove the Motherboard Tray assembly. Lift the back of the assembly first and then work it out of the chassis.

Replacing the Motherboard

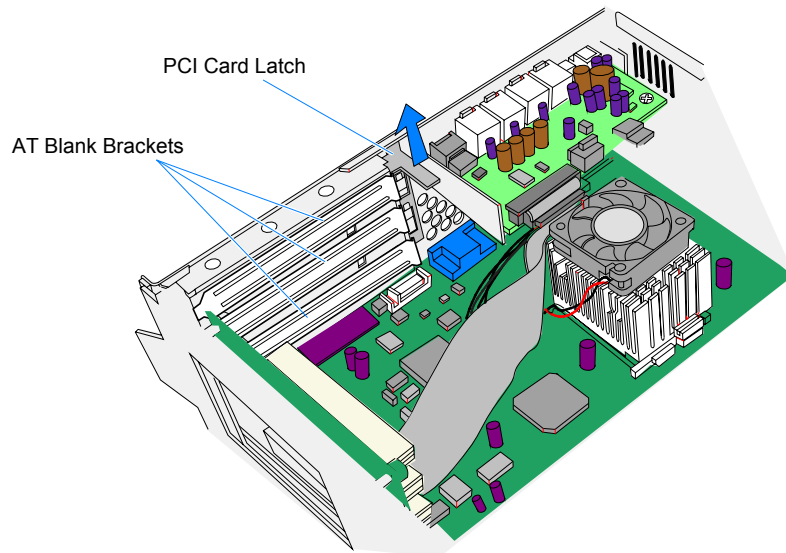
Note: The Motherboard service assembly includes the sheet metal tray and the PCI Tree Card.

1. Verify the board's jumper settings. (See the *Processor Board* section)
2. Remove the CPU, Lithium Battery, and memory modules from the old Motherboard assembly and install them on the new board. See the *Processor Board* section later in this chapter for instructions how to replace these items.
3. Follow the *Removing the Motherboard* instructions in reverse.
4. After powering up the terminal to verify that it is fully functional you should re-flash the BIOS to ensure that it has the latest version.

Removing a PCI Adapter Card

Adapter cards are connected to the PCI Riser Card inside the Electronics Box.

1. Remove the Electronics Tray.
2. Release the Motherboard Tray Slide Latch and slide the Motherboard Tray slightly toward the front of the terminal.
3. Disconnect any cables to the PCI Adapter Card.
4. Remove the PCI Card Latch. This is accomplished by lifting up on the latch as shown below.



5. Disconnect the PCI Adapter Card from the PCI Riser Card.

Removing the Power Supply

1. Disconnect all power cables.

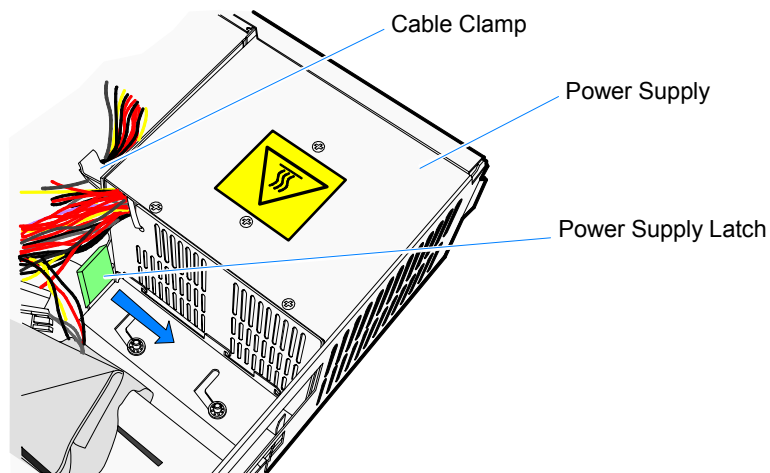
- Hard Disk Power
- Hard Disk #2 Power
- Flexible Diskette Power
- CD-ROM Power
- UPS Battery Power

Note: This is simplified by first removing the hard drive assembly, if present. (See *Removing the Second Hard Drive* section.).

- USB Power
- Motherboard Power

Note: The USB Daughter Card must be moved out of the way in order to access the Motherboard Power Cable.

2. Remove the Power Cables from the Cable Clamp.
3. Release the Power Supply Latch and slide the Power Supply toward the front of the terminal.



4. Remove the Power Supply.

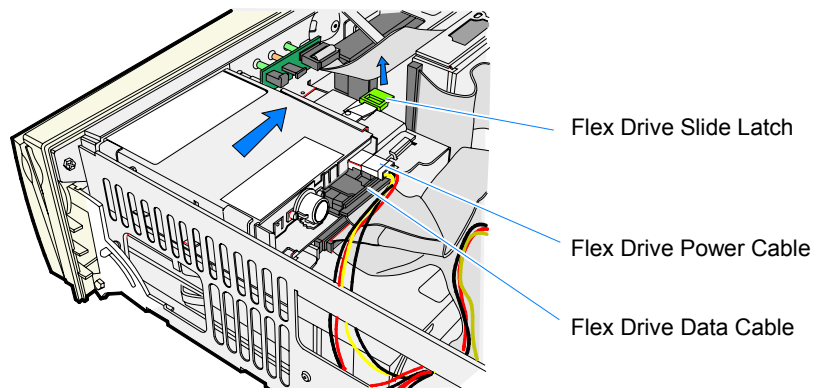
Replacing the Power Supply

The Power Supply has two hooks on the bottom that are used to hold it in place.

1. Position the Power Supply in the terminal chassis so that the hooks align with the slots in the chassis.
2. Slide the Power Supply toward the back of the terminal. The top of the Power Supply slides under a turned over rail on the back of the terminal.
3. Lock the Power Supply Latch.
4. Route the Power Cables through the Cable Clamp.

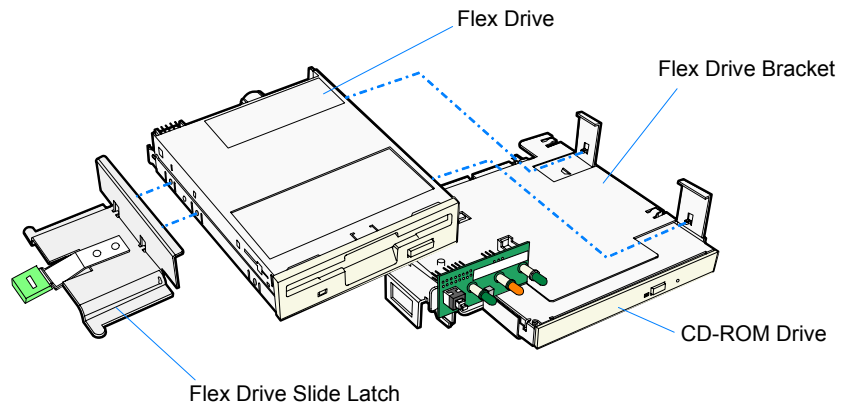
Removing the Flexible Disk Drive

1. Disconnect the cables from the Flexible Disk Drive.
2. Lift up on the green tab (under the ribbon cable) and slide the Flex Drive Slide Latch away from the drive.
3. Remove the Flex Drive.



Replacing the Flexible Disk Drive

1. Place the Flex Drive in the Flex Bracket, aligning the screw holes in the Flex Drive with the two pins on the bracket.

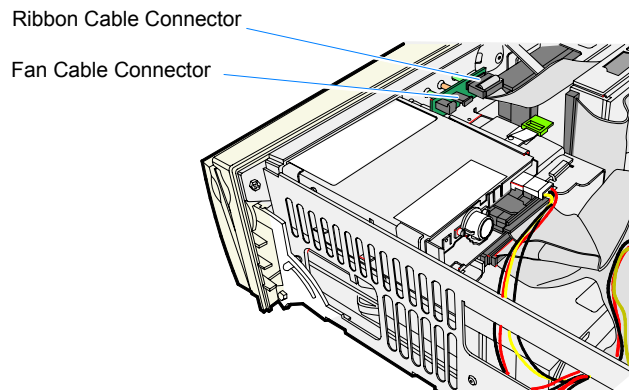


20340

2. Slide the Flex Slide Latch against the Flex Drive until it latches. The bracket has two pins that align with the screw holes in Flex Drive.
3. Connect the cables.

Removing the CD-ROM Drive

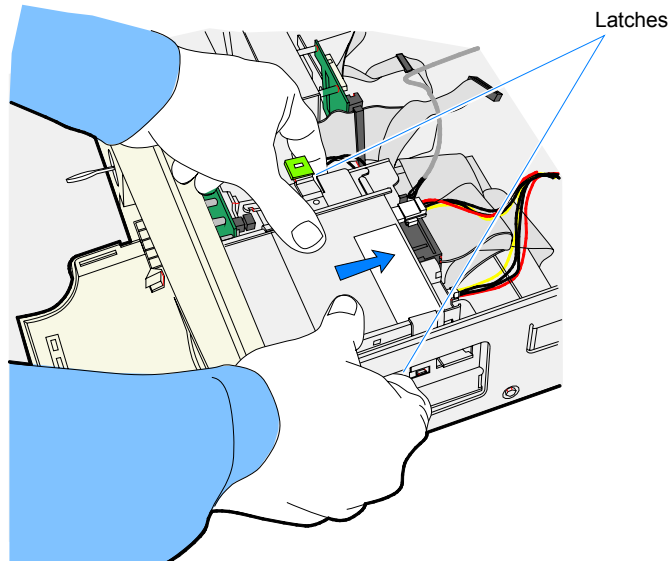
1. Disconnect the Fan Cable and Ribbon Cable from the Front Control Panel.



20505

2. Press in on the latches on the sides of the disk drive assembly. At the same time slide the drive assembly toward the back of the terminal using your thumbs.

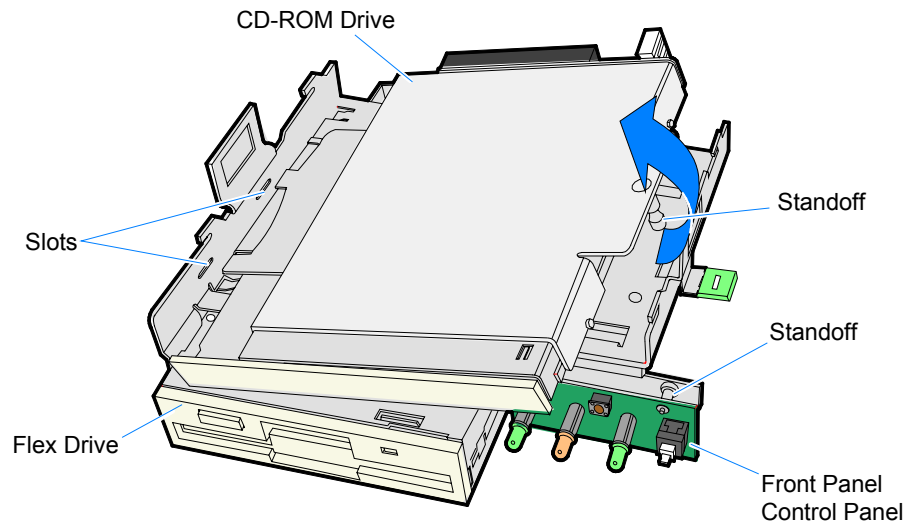
Note: Press on the top set of latches. The bottom latches are for the Hard Drive Drawer.



20335

3. Lift the drive assembly out of the terminal and disconnect the cables from the drive(s).

4. Turn the assembly upside down and remove the CD-ROM Drive from the bracket.
 - Disconnect the standoff by pulling up on the CD-ROM Drive
 - Remove the drive from the slots in the bracket



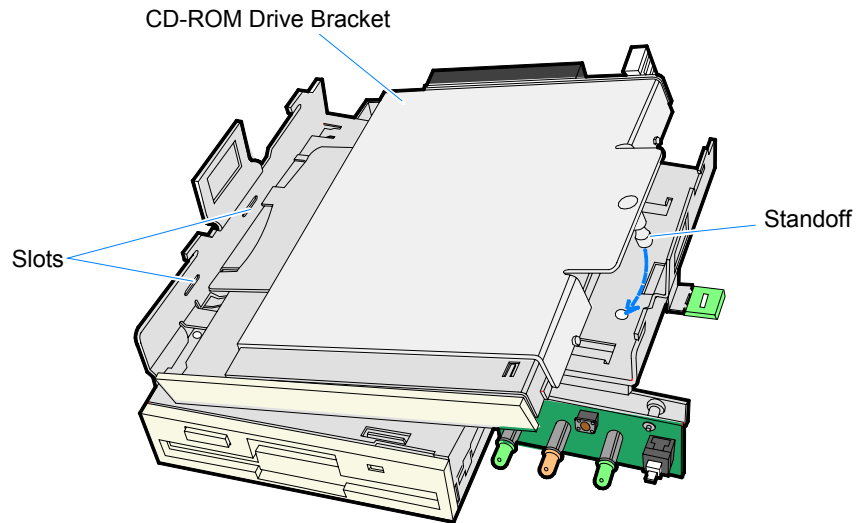
20336

Replacing the Front Panel Control Board

The Front Panel Control Board is mounted on standoffs on the Flexible Disk Drive/CD-ROM Bracket for easy removal/replacement.

Replacing the CD-ROM Drive

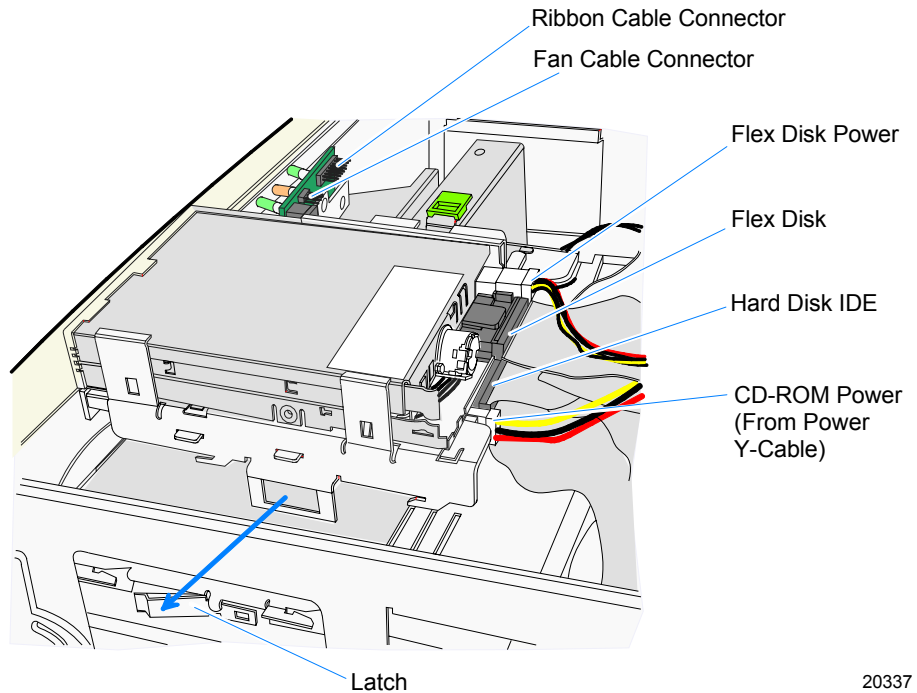
1. Insert the two extensions of the CD-ROM Drive Bracket into the slots in the bracket.



2. Snap the standoff into the hole in the bracket.

20336a

3. Install the Flexible Disk Drive/CD-ROM Assembly in the terminal. There are two hooks on the bottom of the assembly that should align with hooks on the Hard Disk Bracket. Slide the Flexible Disk Drive/CD-ROM Assembly toward the front of the terminal until it latches into position.

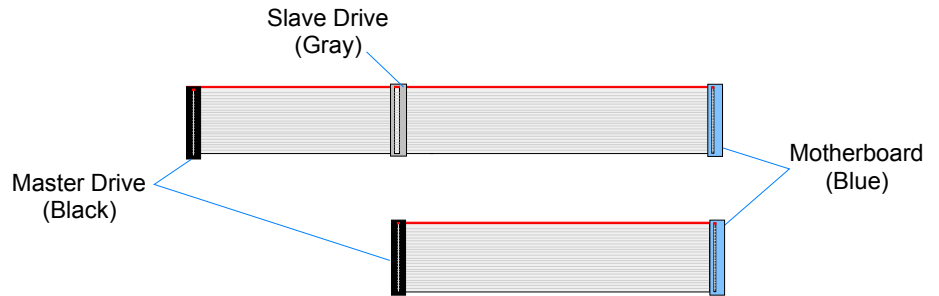


20337

4. Reconnect the cables to the disk assembly and Front Panel Control Board.

Note: IDE interface cable connectors are color coded:

- Blue connector – Motherboard
- Black connector – Master Drive
- Gray Connector – Slave Drive/Device (CD-ROM, Compact Flash when the Secondary Hard Drive is present)

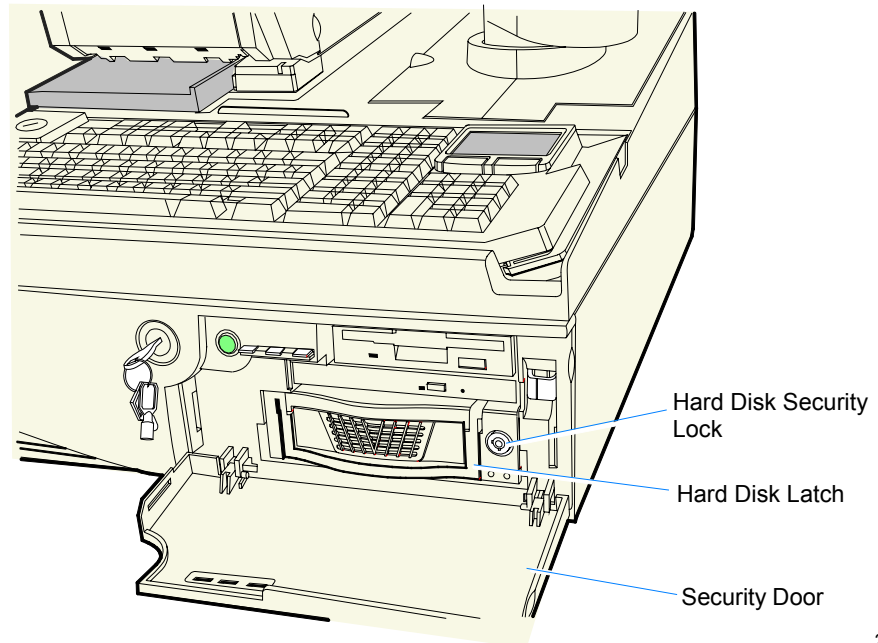


20546

Removing the Hard Disk

Note: The Hard Disk can be removed without having to open the cabinet.

1. Unlock and open the Security Door.



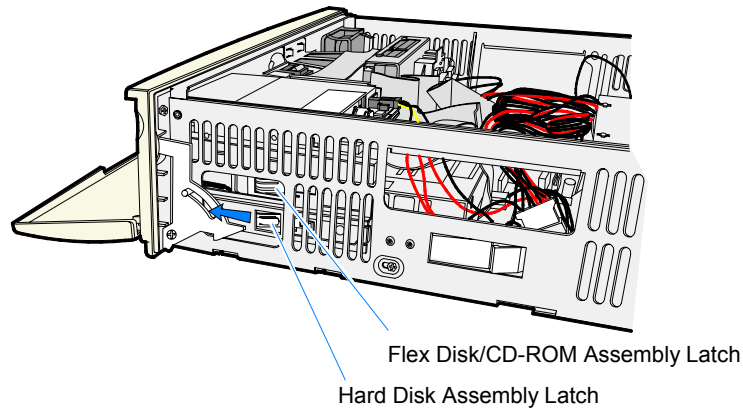
20345

2. Unlock the Hard Disk Security Lock.
3. Lift up on the Hard Disk Latch and remove the drive.

Removing the Hard Disk Assembly

If necessary, the entire Hard Disk Assembly can be removed.

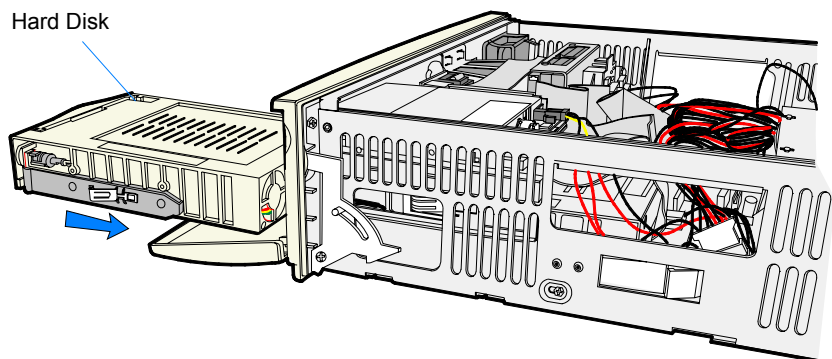
1. Disconnect the cables from the Hard Disk.
2. Press in on the latches on the sides of the Disk Drive Assembly. At the same time slide the assembly toward the front of the terminal.



20334

Replacing the Hard Disk Assembly

1. Insert the Hard Disk Assembly into the slot in the front of the terminal. Slide it in until it latches.



20339

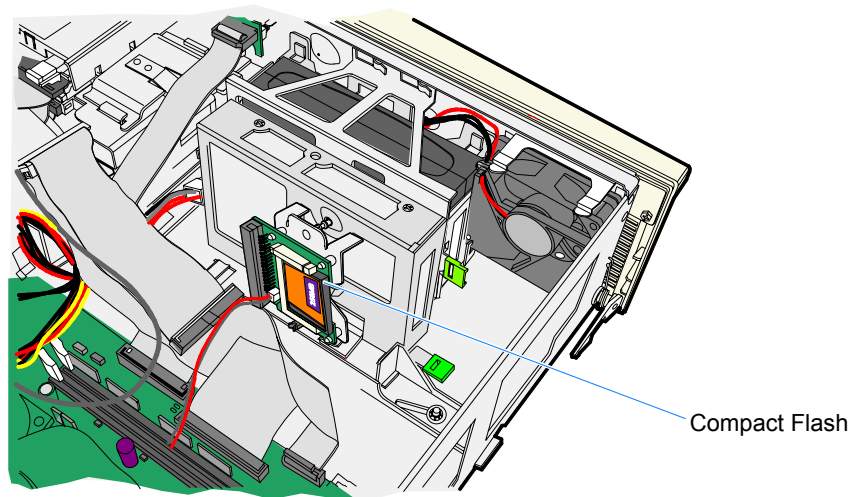
2. Lock the Hard Drive Security Lock.
3. Connect the cables.

Removing the Compact Flash

The terminal configuration determines where the Compact Flash is mounted. It can be on the Secondary Hard Disk Bracket, the UPS Battery Bracket, or on the chassis. All three locations contain the same hole/slot pattern for the mounting the bracket.

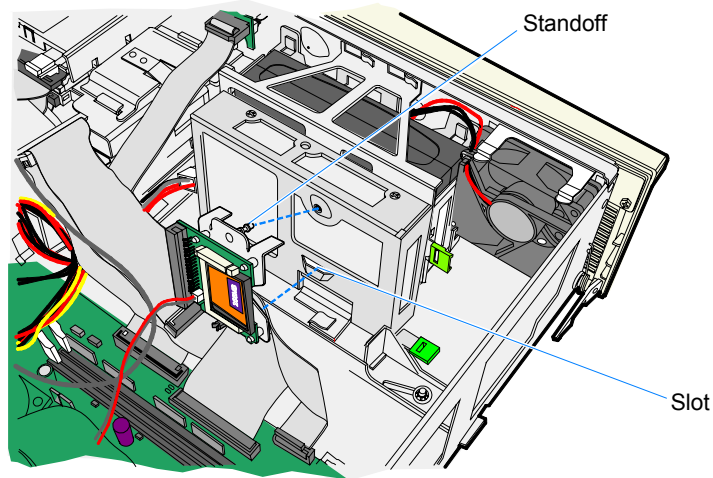
1. Disconnect the Compact Flash Power Cable from the Motherboard.
2. Disconnect the Compact Flash Interface Cable (Ribbon Cable) from the Compact Flash.
3. Remove the Compact Flash Assembly. The assembly has a hook on the bottom end of the bracket and a snap connection standoff on the top end. Unsnap the standoff and remove the assembly.

The card is mounted on four snap standoffs on the bracket for easy removal.



Replacing the Compact Flash

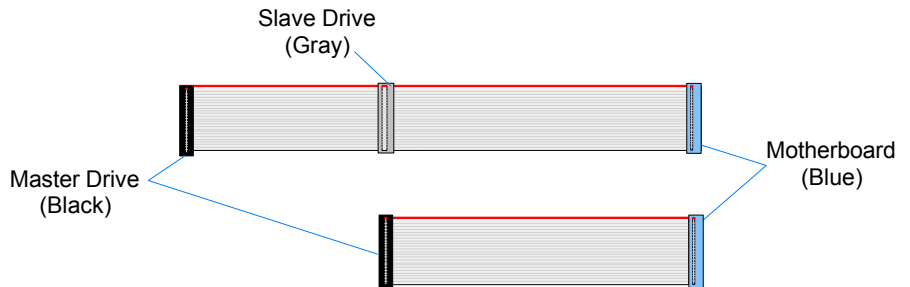
1. Hook the bottom of the Compact Flash Bracket onto the slot on the Hard Disk Bracket (or UPS Bracket or the Chassis as applicable).
2. Snap the standoff into the hole on the bracket.
3. Connect the Compact Flash Power Cable and Compact Flash Interface Cable.



20331

Note: IDE interface cable connectors are color coded:

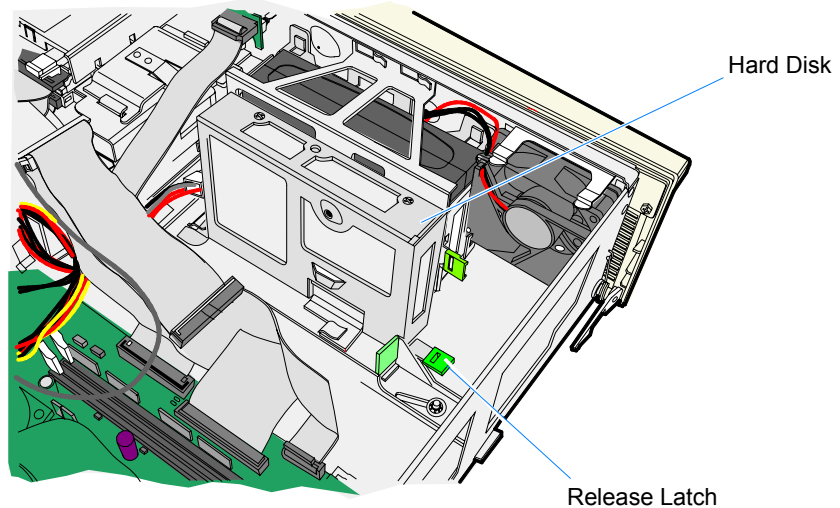
- Blue connector - Motherboard
- Black connector - Master Drive
- Gray Connector - Slave Drive/Device (CD-ROM, Compact Flash when the Secondary Hard Drive is present)



20546

Removing the Secondary Hard Disk

1. Lift the Hard Disk Release Latch on the Hard Disk Bracket and slide the drive assembly to the side as shown below to disengage it from the chassis.

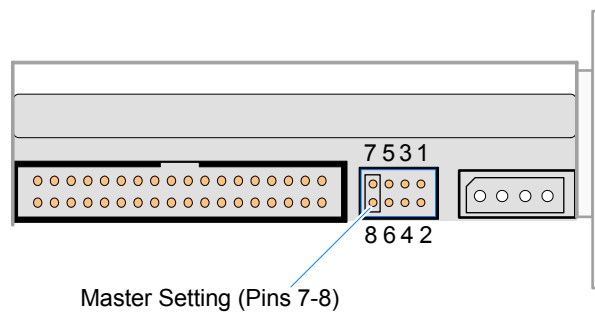


20330

2. Disconnect the Hard Disk cables.

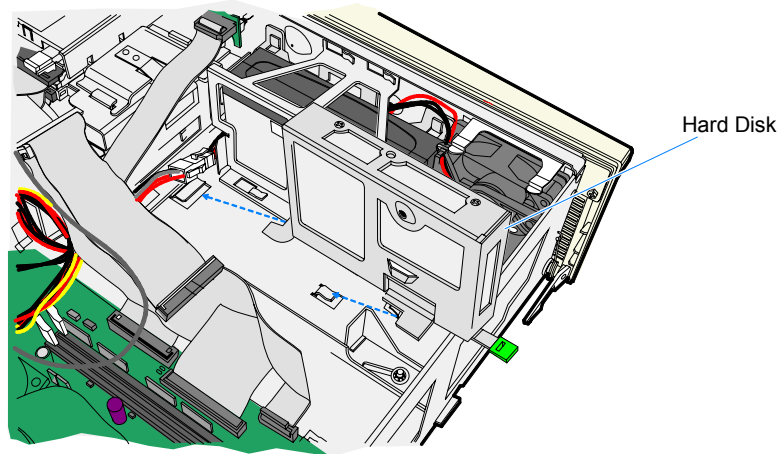
Replacing the Secondary Hard Disk

1. Verify the jumper settings on the Hard Disk is set to Master.



20421

2. Position the Hard Disk assembly over the hooks in the chassis base and slide it into its latched position.

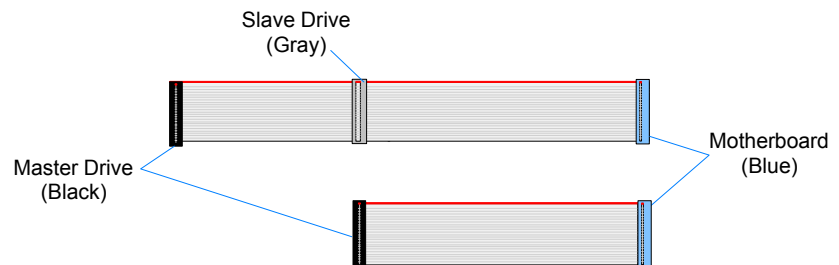


20418

3. Connect the Power Cable (HDD3) to the Hard Disk.
4. Connect the Hard Disk Interface Cable to the Hard Disk and to IDE-2 on the Motherboard.
5. Connect the Hard Disk cables.

Note: IDE interface cable connectors are color coded:

- Blue connector – Motherboard
- Black connector – Master Drive
- Gray Connector – Slave Drive/Device (CD-ROM, Compact Flash when the Secondary Hard Drive is present)

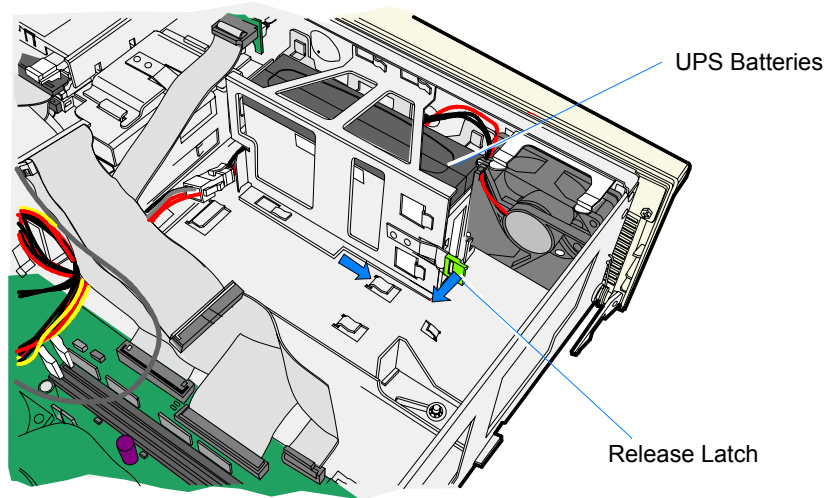


20546

6. Position the Hard Disk assembly over the hooks in the chassis base and slide it into its latched position.

Removing the UPS Battery Assembly

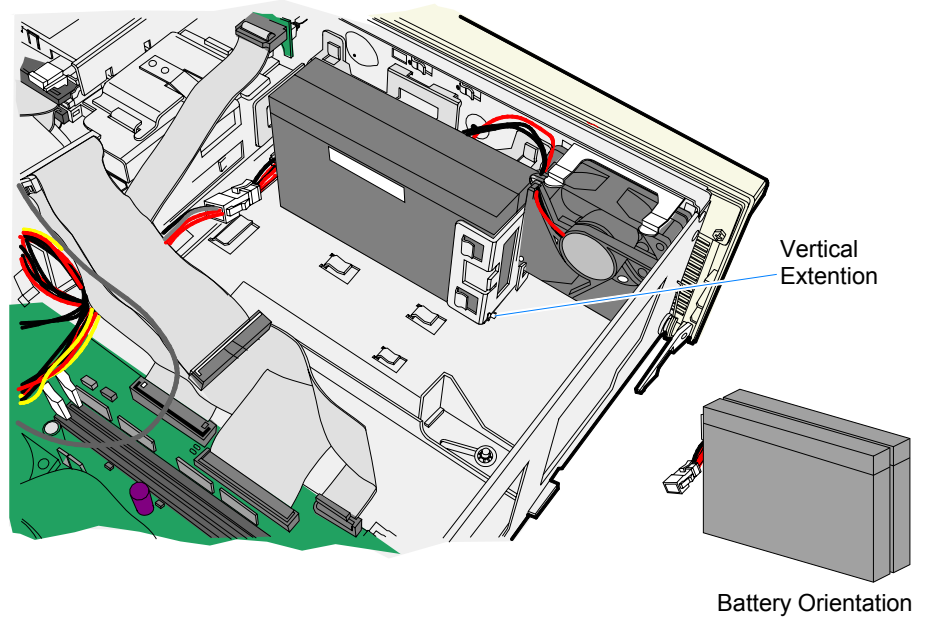
1. Remove the Secondary Hard Disk (if present).
2. Remove the Outside UPS Battery Bracket.
 - a. Release the latch on the by pressing the green tab toward the back of the terminal as shown below.
 - b. Slide the bracket toward the side of the terminal to disengage the hooks.



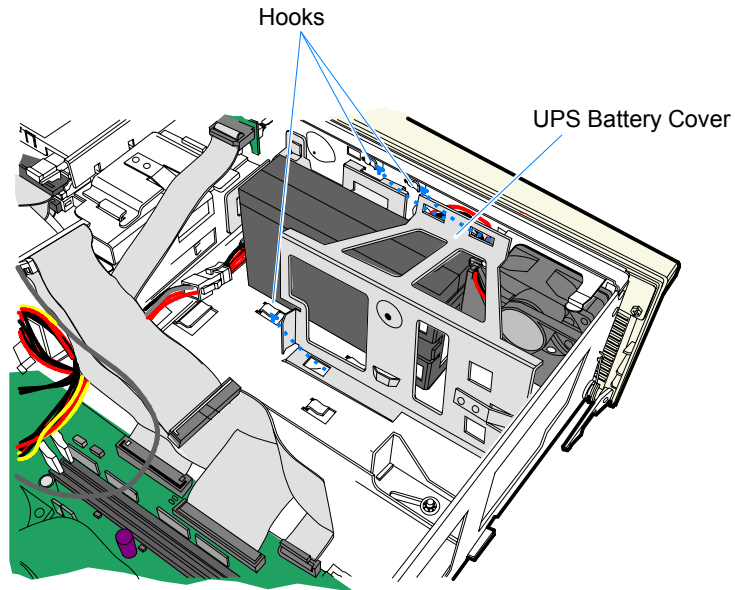
3. Remove the batteries and disconnect the UPS Battery Cable.
4. **Optional:** If you need access to the Fan Cable remove the Inside UPS Battery Bracket.

Replacing the UPS Batteries

1. Connect the UPS Battery Cable to the Power Supply.
2. Insert the batteries in the bracket. This is a tight fit so be careful to not cut the battery cables. Note the battery orientation. Also, make sure the one battery is not sitting on top of the vertical sheet metal extension in the base.



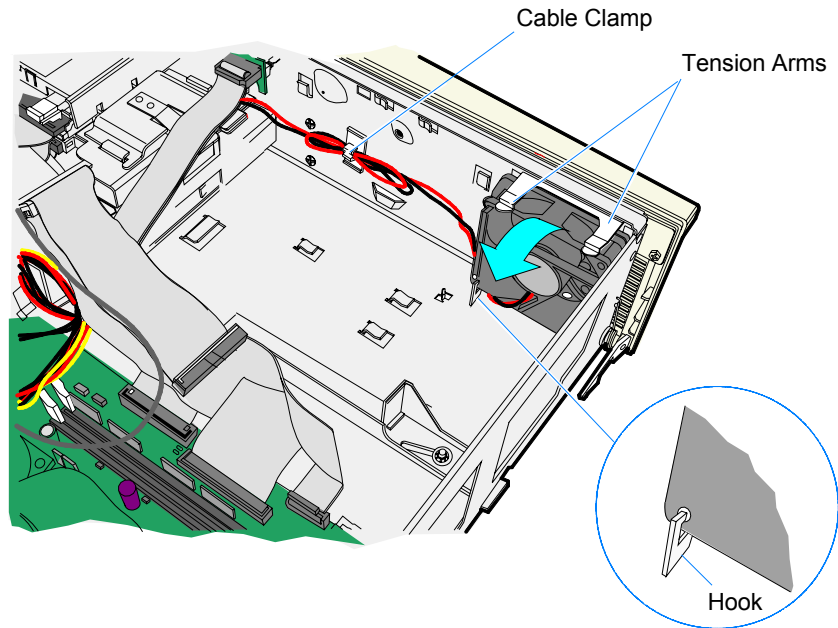
3. Install the UPS Battery Cover.
 - a. Align the slots (3) in the bracket with the hooks in the chassis
 - b. Slide the bracket into its latched position.



Removing the Fan

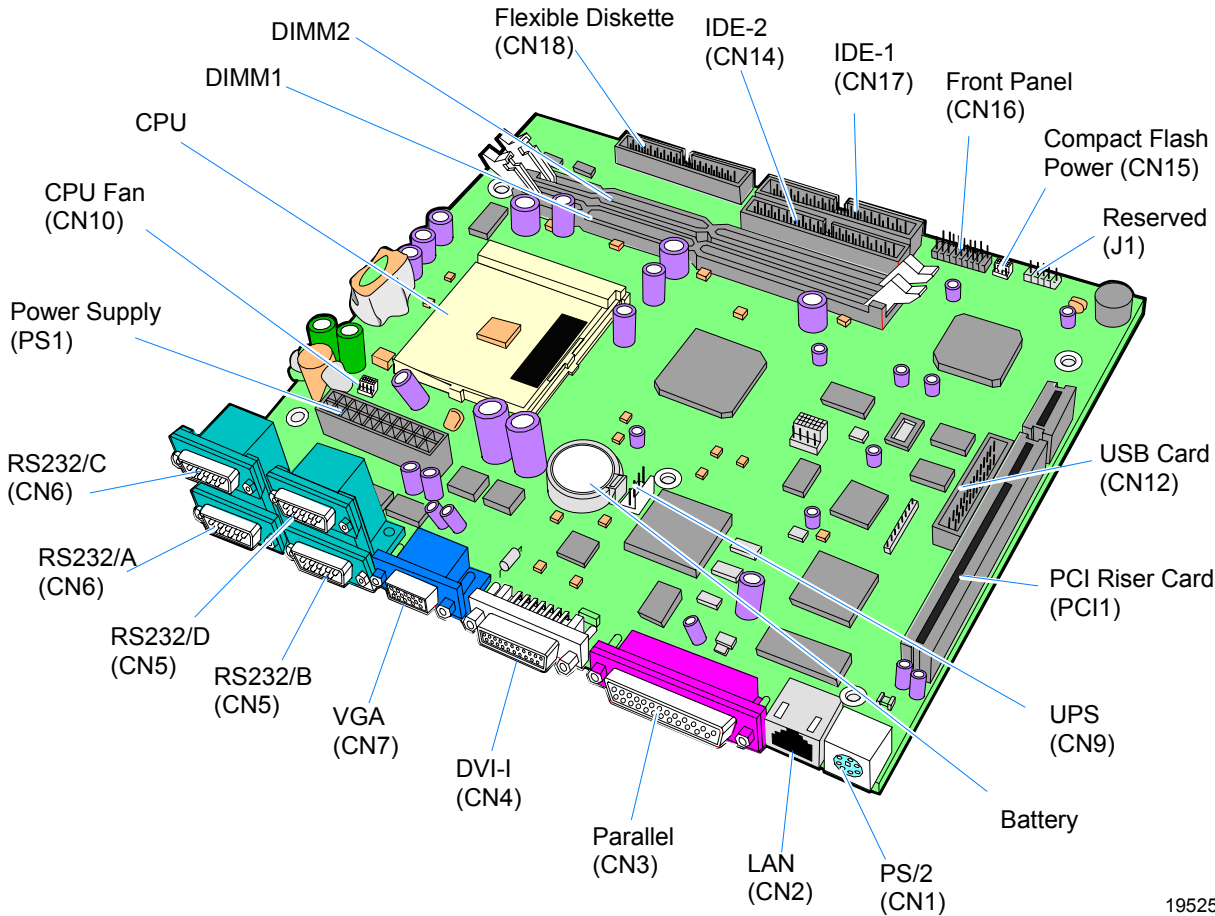
Note: The UPS Batteries (if present) must be removed before the Fan can be removed (see the *Removing the UPS Battery Assembly* section.)

The Fan is mounted on two hooks and held in place by two Tension Arms. The cable is connected to the Front Panel Control Board and is held in place with two Cable Clamps.



Circuit Boards

Processor Board



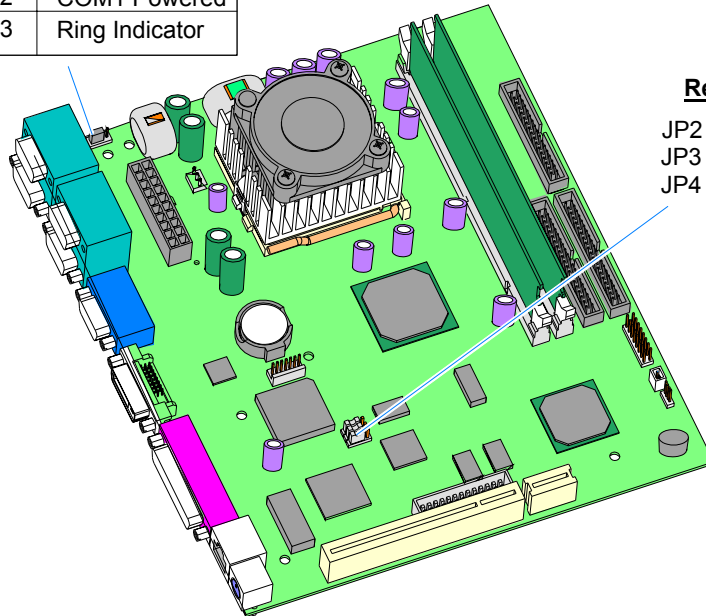
Jumper Settings

COM1 Power

JP1 | |

Default settings shown

Pin 1 - 2	COM1 Powered
Pin 2 - 3	Ring Indicator



Reserved

JP2 | |
 JP3 | |
 JP4 | |

19547

Memory Configurations

Single DIMM (MB)	Number of DIMMs	Total Memory (MB)
64	1	64
64	2	128
128	1	128
128	2	256
256	1	256
256	2	512

Installing Memory Modules

The 7458 contains two DIMM sockets.

To install the DIMM, follow these steps:

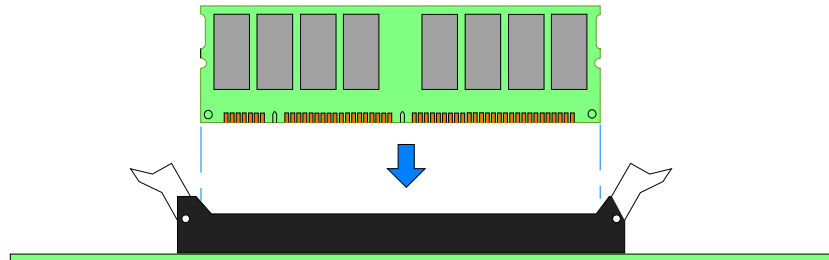
1. Slide the Electronics Tray out of the terminal cabinet and locate the DIMM socket.
2. Open the latches at the ends of one of the sockets.



19532

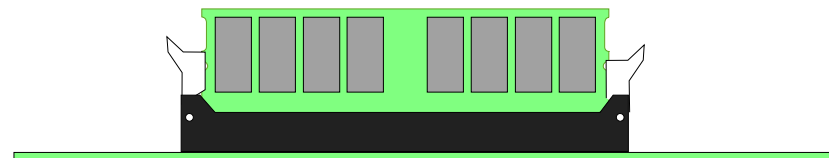
Note: The DIMM can be installed into either DIMM socket.

3. Align the DIMM in the socket and push it straight down (Note that the DIMM connector is keyed).



17807

4. Ensure that the edges of the DIMM engage the latches and that the latches are completely closed.

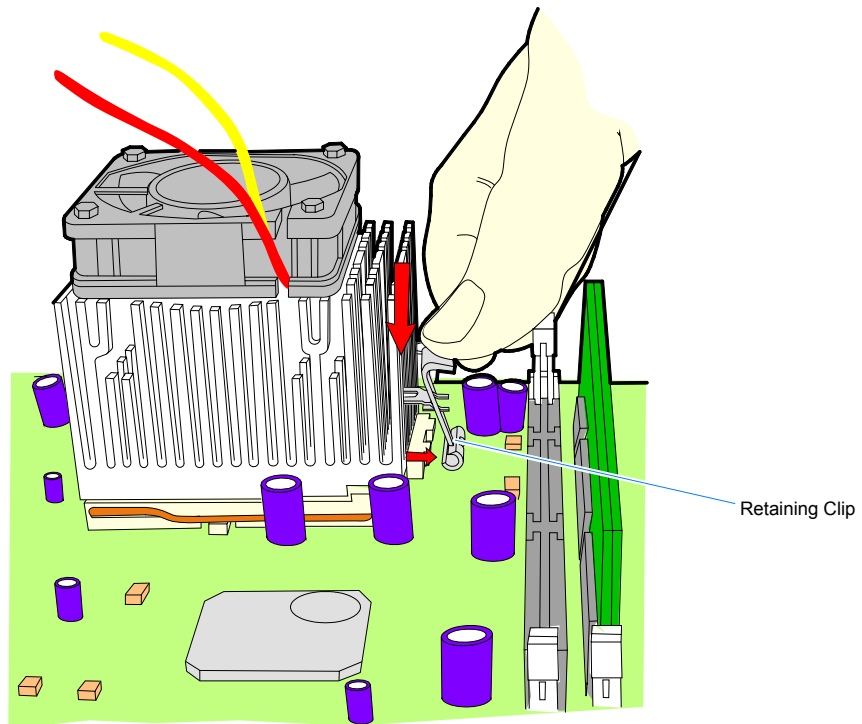


19533

Replacing the CPU

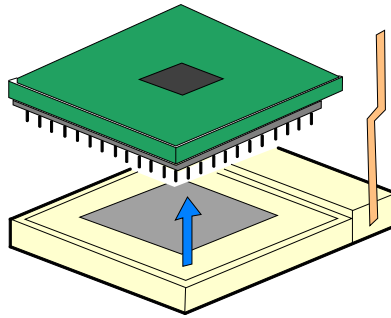
CPU replacement kits include a CPU and a Heat Sink and Fan Assembly. To replace these parts, use the following procedure.

1. Slide the Electronics Tray out of the terminal cabinet.
2. Locate the CPU (refer to Motherboard illustration earlier in this section).
3. Remove any components that may obstruct removal of the CPU.
4. Unplug the Fan Harness.
5. Unhook the Heat Sink and Fan Assembly by pushing down on the Retaining Clip and pivoting the clip away from the socket.



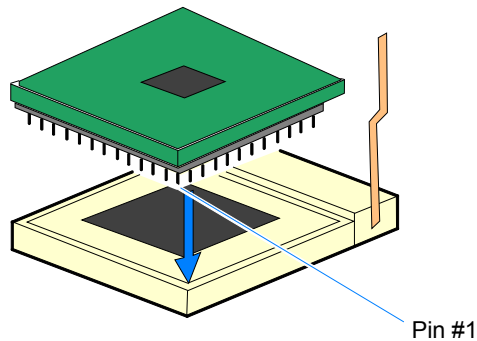
6. Remove the Heat Sink and Fan Assembly.

7. Unsnap the Lever on the CPU Socket and raise it to a vertical position.
8. Carefully remove the CPU and place it in an anti-static packing.



18466a

9. Correctly position the new CPU over the CPU Socket and then guide the pins gently into place. Once it is aligned in the socket, push the CPU into the socket until it is fully seated.

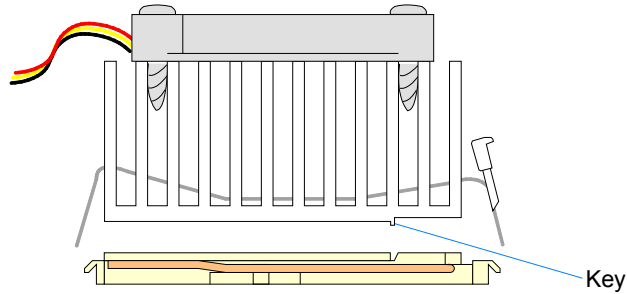


18466

10. Lock the CPU in the socket by lowering the Lever and snapping it into position.
11. Peel the thin plastic covering off the bottom of the new Heat Sink.

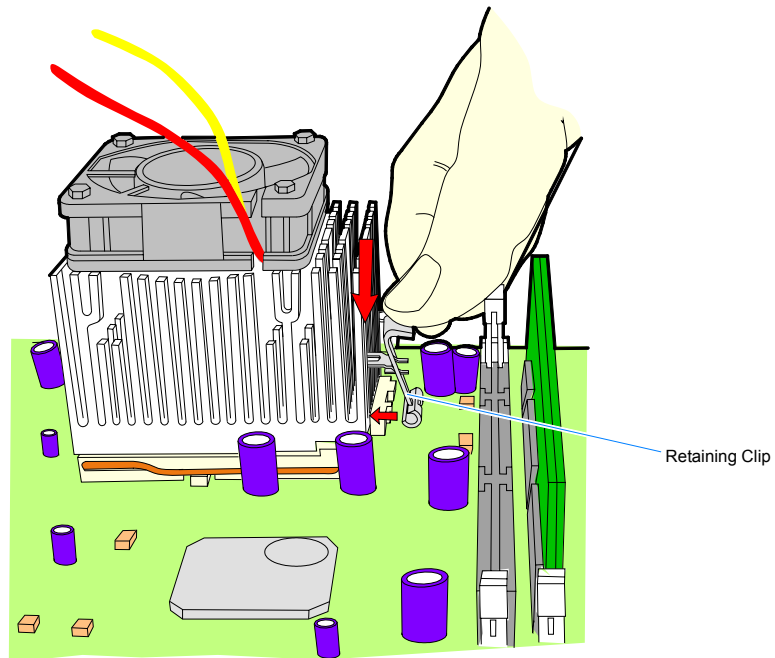
12. Position the Heat Sink and Fan Assembly over the CPU (align the Key) and lower it onto the CPU.

Caution: Make sure the Key is between the CPU and the connector. Otherwise the CPU will overheat.



17925

13. Hook the Clip on the left side of the CPU Socket. Then push down on the Retaining Clip on the right side of the socket and hook it to the socket.



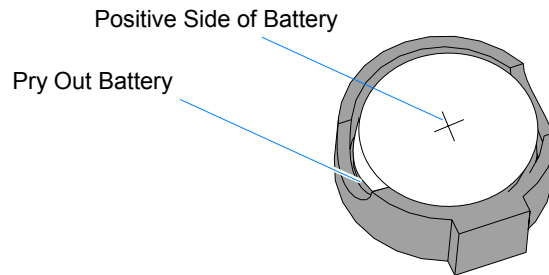
19544a

14. Plug the Fan Harness into the Motherboard (CN10).

Replacing the Lithium Battery

Caution: Danger of explosion if battery is incorrectly replaced. Replace only with the same or equivalent type as recommended by the manufacturer. Discard used batteries according to the manufacturer's instructions.

1. Slide the Electronics Tray out of the terminal cabinet.
2. Locate the Battery (see the board illustrations earlier in this section).
3. Pry the Battery out of the socket.



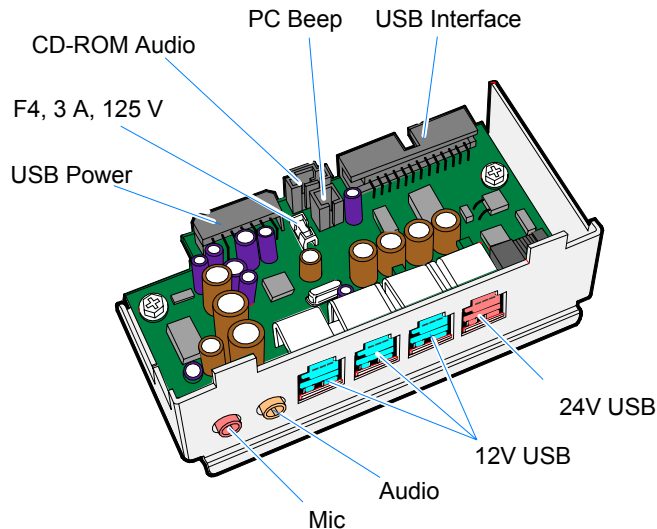
19664

4. Insert the new battery.
5. Replace the Electronics Tray.
6. Run **Setup** and set *defaults*. Set the Date/Time and make any desired special settings.

USB Daughter Card

The USB Daughter Card provides powered USB connectors for peripheral support.

Self-Healing Fuses: Each of the USB ports are fuse protected. The 24V port uses a standard replaceable fuse. The 12V ports use *Self-Healing Fuses*. If the current flow exceeds the fuse capacity, the fuse opens the circuit. Once the cause of the excessive current draw (short, bad peripheral etc) is removed, the fuse material cools down, and in few seconds the fuse closes.



20372

Controller Ports

- Ports C & B are controlled by the USB controller at Bus 0, Device 7, Function 2
- Ports A & 24V are controlled by the USB controller at Bus 0, Device 7, Function 3

Note: The USB controller can be disabled in BIOS *Setup* under the *Advanced* menu, in the *OnChip Multi-function Device* menu. It is identified as **OnChip USB 2 Device:**

Daughter Card Power Connector

14	12	10	8	6	4	2
GND	24V	12V	GND	5V	GND	GND
13	11	9	7	5	3	1
GND	24V	12V	3.3V	5V	5V	GND

View Looking Into Board

PIN ASSIGNMENTS			
1	GROUND	2	GROUND
3	+5V	4	GROUND
5	+5V	6	+5V
7	+3.3V	8	GROUND
9	+12V	10	+12V
11	+24V	12	+24V
13	+24V RTN	14	+24 RTN

Audio Connectors**Amplified Stereo Out**

Connector: Nike NK-0250

PIN ASSIGNMENTS			
1	GROUND	4	GROUND
2	OUT 2	5	GROUND
3	OUT 1		
Color: ORANGE			

Microphone In

Connector: Nike NK-025P

PIN ASSIGNMENTS			
1	GROUND	4	GROUND
2	MIC IN	5	GROUND
3	GROUND		
Color: PINK			

CD Audio In

Connector: Plastron LPHI-04S-020-3.0

PIN ASSIGNMENTS	
1	CD_LEFT
2	GROUND
3	GROUND
4	CD_RIGHT

PC Speaker Input

Connector: Nike 271S02-A01

PIN ASSIGNMENTS	
1	PC BEEP (SPEAKER)
2	GROUND

Motherboard Interface Connector

25	23	21	19	17	15	13	11	9	7	5	3	1
26	24	22	20	18	16	14	12	10	8	6	4	2

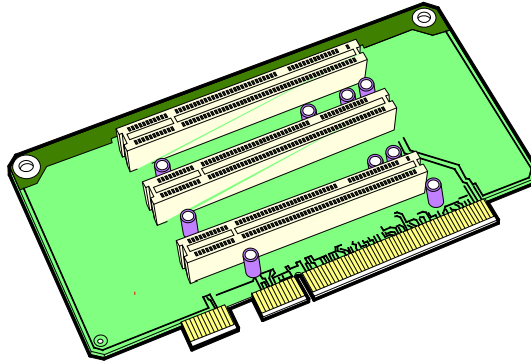
View Looking Into Board

PIN ASSIGNMENTS	
1 SYNC	2 SDOUT
3 ACRST~	4 SDIN
5 BITCLK	6 CD_OPEN_A
7 CD_OPEN_B	8 CD_ST_AB
9 REFRESH~	10 CPWOK
11 SD(0)	12 SD(1)
13 SD(2)	14 SD(3)
15 GROUND	16 USBDT0 +
17 USBDT0 -	18 GROUND
19 USBDT1 +	20 USBDT1 -
21 GROUND	22 USBDT2 +
23 USBDT2 -	24 GROUND
25 USBDT3 +	26 USBDT3 -

Connector: Molex C-GRID #70247-2601

3-Slot PCI Riser Card

The 3-Slot PCI Riser Card provides for three PCI expansion slots.



20374

Ethernet Circuitry

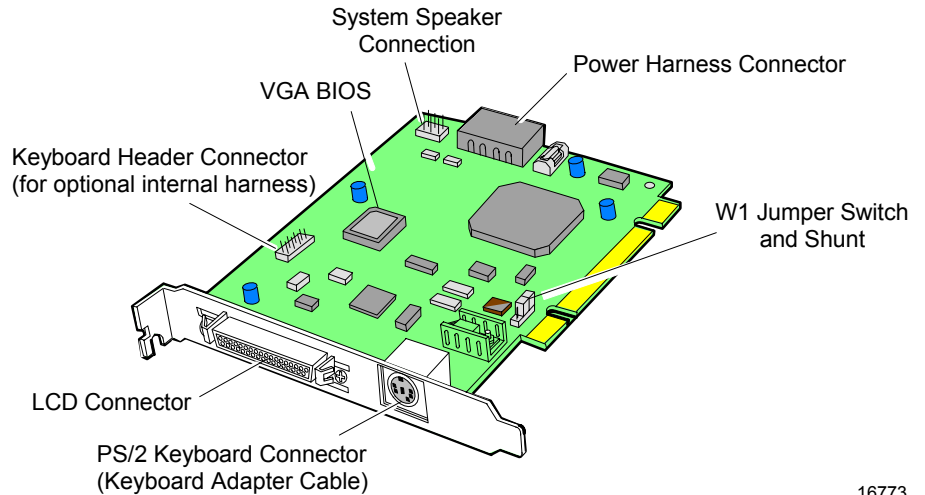
The onboard Ethernet circuitry supports wiring in accordance with the following specifications.

Standard	10/100Base-T
Data Rate	100 M bit/s
Segment Length	100 M
Max Segments between Nodes	NA
Max Repeaters between Nodes	4
Network Span	NA
Nodes/Segment	NA
Node Spacing	NA
Cable	CAT 5

The BIOS provides PXE Boot ROM capabilities for network loading.

PCI LCD Board (5953-K152)

This PCI LCD Board provides a PCI bus interface for the 5953 12.1-Inch DynaKey.

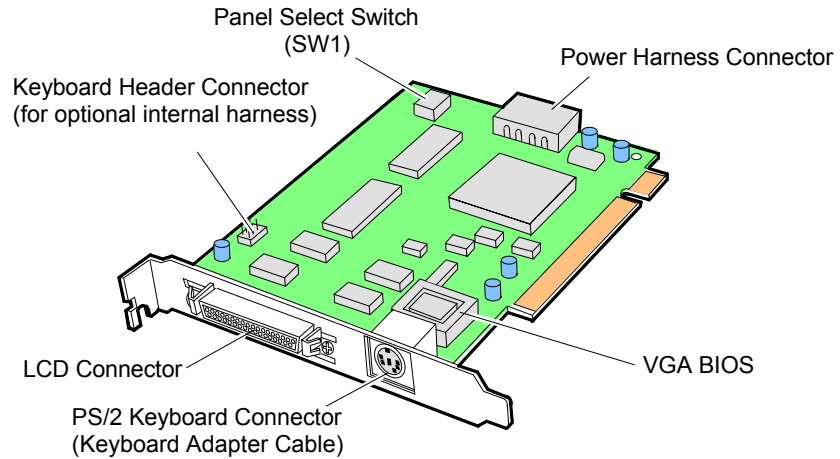


16773

The jumper for W1 must either be placed in position 2-3 or not installed at all.

PCI LCD Board (5952-K052)

This PCI LCD Board provides a PCI bus interface for the 5952 10.4-Inch DynaKey.



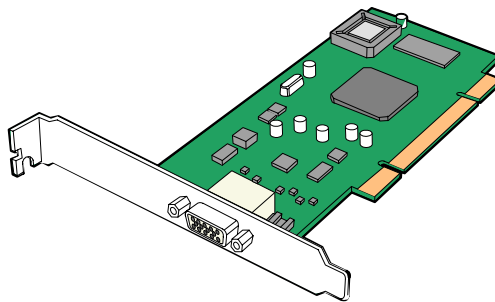
15376

Setting the Panel Select Switch (SW1)

P1	P2	P3	Function
OFF	OFF	OFF	Panel 8 (Color DSTN) (Passive)
OFF	OFF	ON	Panel 7 (Mono STN)
OFF	ON	OFF	Panel 6 (Color TFT) (Active)
OFF	ON	ON	Panel 5 (Unused)
ON	OFF	OFF	Panel 4 (5" Mono)
ON	OFF	ON	Panel 3 (Unused)
ON	ON	OFF	Panel 2 (Unused)
ON	ON	ON	Panel 1 (Unused)

PCI VGA Video Card (7456-K350)

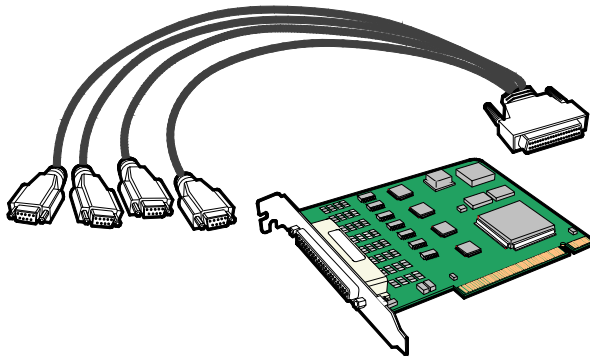
This PCI card provides a PCI bus interface for CRTs used in dual display configurations. Install the VGA PCI Card into a PCI slot in the terminal. See the *Hardware User's Guide* for information how to install an adapter card. See the *PCI VGA Video Card (7456-K350)* for installation information. For information about using the card in a Dual Display configuration see the *Customer Information Display User's Guide (BD20-1431-B)*.



20451

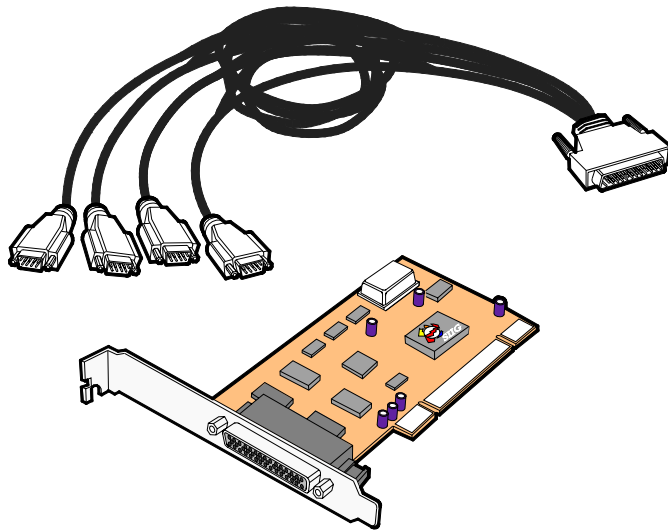
4-Port PCI RS-232 Board (3030-K169)

The 4-Port RS-232 Board provides four additional RS-232 ports. The board requires one unique IRQ and four eight-byte I/O addresses which are automatically assigned by the PCI BIOS. It can operate in a Windows 95/98/2000 or Windows NT environment. The board uses a 4-Port RS-232 cable to connect to peripheral devices. See the *4-Port PCI RS-232 Board (3030-K169)* for installation information.



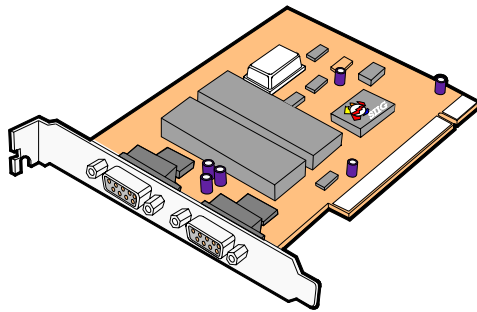
4-Port PCI RS-232 Expansion Card (3212-K170)

The SIIG Full Profile PCI-4S RS-232 Board provides four additional RS-232 ports. The board requires one unique IRQ and four eight-byte I/O addresses which are automatically assigned by the PCI BIOS. It can operate in a DOS/Windows 3.1x, Windows 95/98/98 SE/NT4.0/2000 or Windows XP environment. The board uses a 4-Port RS-232 cable to connect to peripheral devices. See the *4-Port PCI RS-232 Expansion Card (3212-K170)* for installation information.



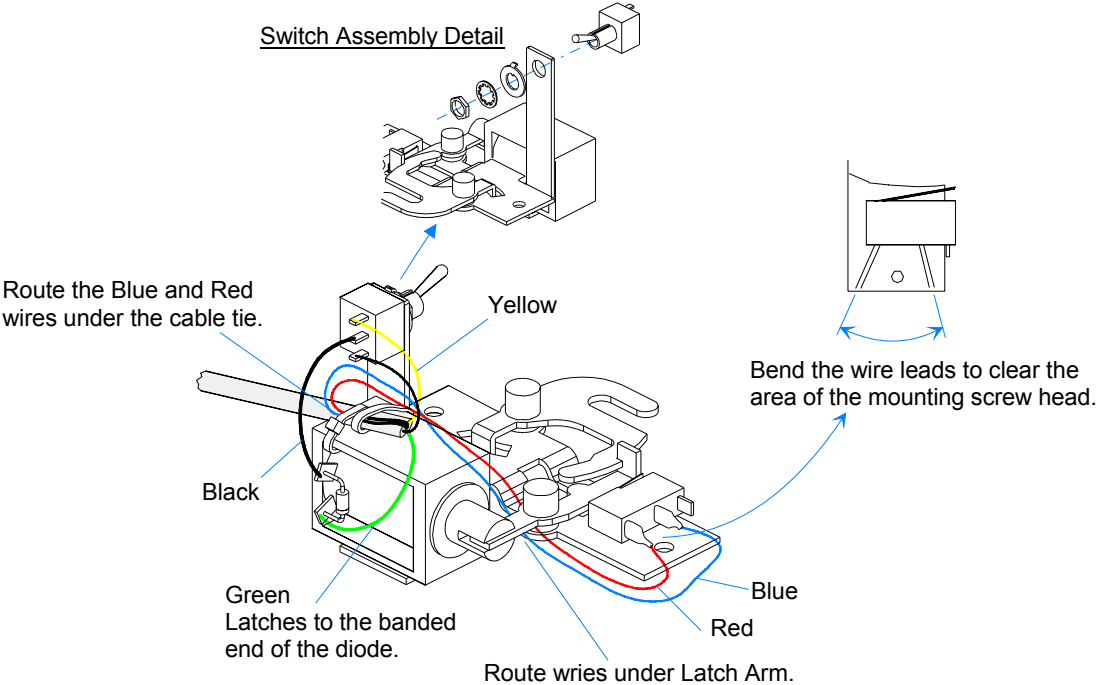
2-Port PCI RS-232 Expansion Card (3212-K171)

The SIIG Full Profile PCI 2S RS-232 Board provides two additional RS-232 ports. The board requires one unique IRQ and two eight-byte I/O addresses which are automatically assigned by the PCI BIOS. It can operate in a DOS/Windows 3.1x, Windows 95/98/98 SE/NT4.0/2000 or Windows XP environment. The board has two RS-232 ports for connecting peripheral devices. See the *2-Port PCI RS-232 Expansion Card (3212-K171)* for installation information.

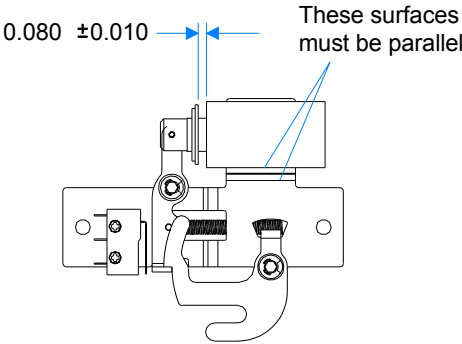


Cash Drawer

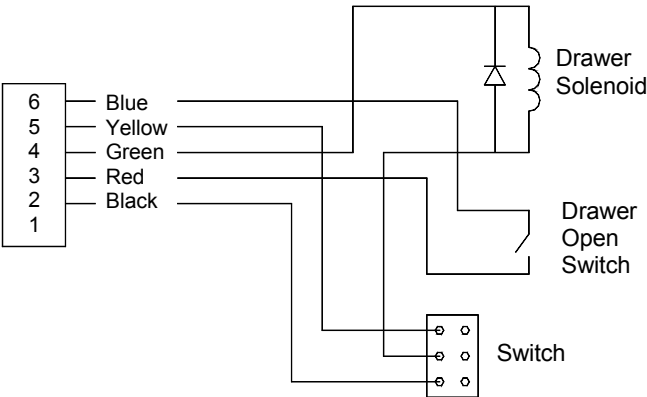
Latch Assembly Wiring and Adjustments



Solenoid Adjustment



Schematic



Power Supply

The power supply provides power to the 7458 Terminal, as well as various retail peripherals through the powered connectors. The power supply is controlled by a logic on/off switch, which permits it to be disabled through software. An AC outlet without a switch is provided at the rear of the power supply for AC power to a CRT

Other features include:

- Internal UPS including a battery charger and harness to 24 V lead acid batteries
- Un-switched AC convenience outlet (for CRT)
- Auto sensing for 115 VAC/230 VAC operation
- Cooling fan
- TTL voltage compatible UPS signal harness (~UPS_OFF, AC_GOOD, ~BATT_SENSE, and BATT_LO signals)
- AUX peripheral power harness

Functionally, the terminal's ON/OFF switch controls the power supply control logic (~REM_EN) to activate the power supply. This switch does not control actual AC mains voltage applied to the power supply.

AC Input

The power supply operates with the following voltage ranges.

Range	Nominal Vrms	Minimum Vrms	Maximum Vrms	Input Current Max. Arms	
					Including CRT Convenience Outlet
LOW (115)	100-127	90	136	5.3 A	8.3 A
HIGH (230)	200-240	180	265	2.6 A	4.6 A

DC Outputs

The power supply has the following DC outputs:

Voltage	+3.3 V	+5 V	+12 V	-12 V	+5 VSB	+24 V
Max. Current	10.0 A *	12.0 A *	11.5 A	0.25 A	2.0 A	2.3 A

Maximum Rated Output Power

The maximum rated output power as defined as the sum of the products of each nominal voltage and maximum load, which is 300 W including battery charger output.

UPS

The UPS provides un-interruptible power to all DC outputs in the event of an AC line interruption, until the support batteries reach a specified level or until AC power is available again.

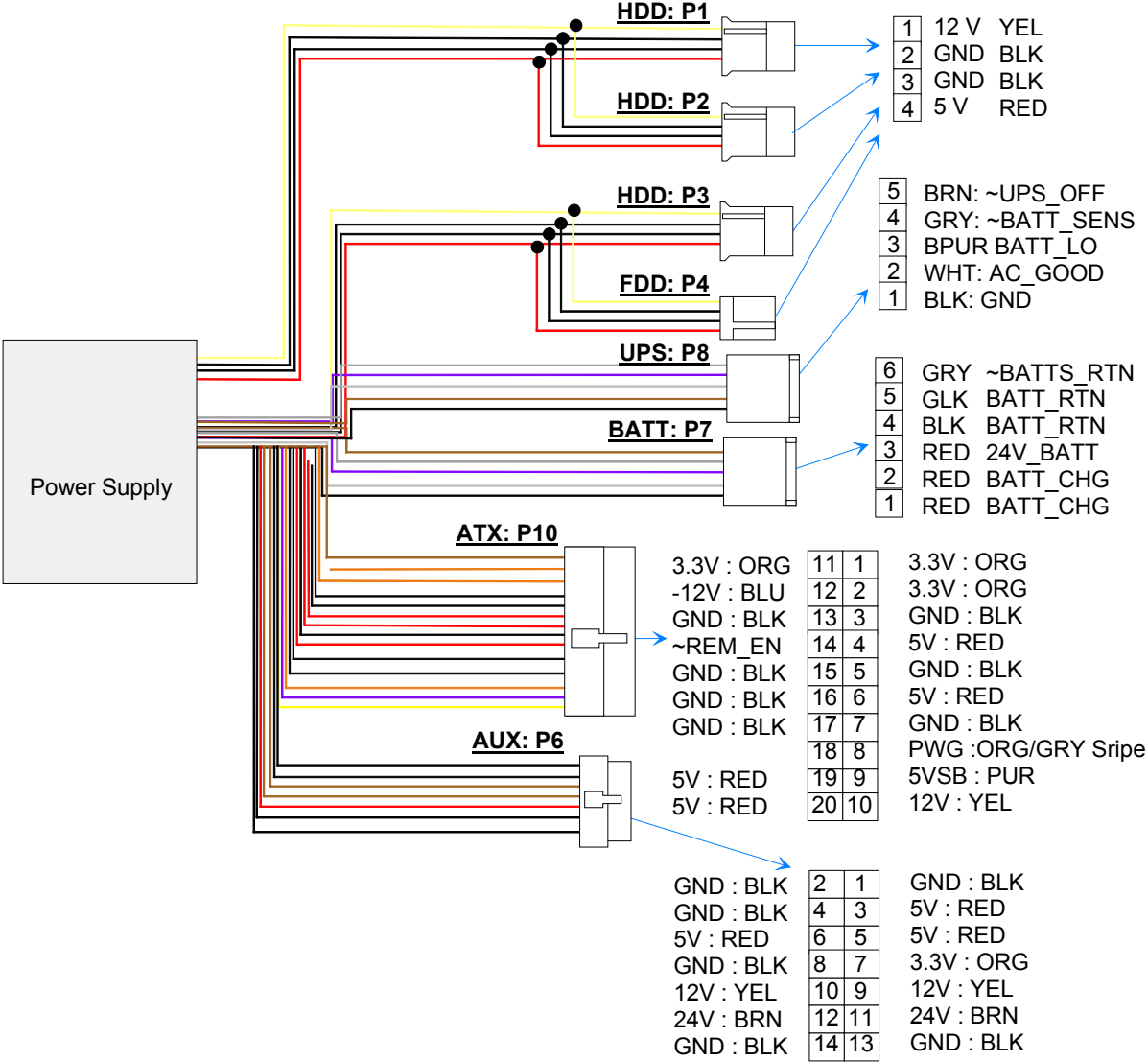
Note: The AC convenience outlet is not powered by the UPS during AC line interruption.

The UPS is used for periods of time ranging from 1 minute to 30 minutes, depending on battery capacity and DC load of the system.

Battery Performance

Application:	Transaction Ride-Through. The battery supports full operation of the POS terminal and peripherals.
Power Draw from Battery	Maximum: 428 W (300 W DC output power and 70% efficiency)
UPS Conversion Efficiency:	70% min, 75% typical
Battery Support Time:	1-30 minutes
Battery Current Draw:	16.5A max at 20V battery voltage
Battery Voltage:	24 V nominal
Battery Capacity	4.0 Ah
Battery Chemistry:	Lead acid, starved electrolyte
Deep Discharge Voltage:	18.0V min , 18.6V typical, 19.2V max (battery disconnect)
Battery Low Voltage:	21.0V min, 22.2V max
Battery Current Drain (after deep discharge cutoff):	100uA max
Lifetime:	3-5 years

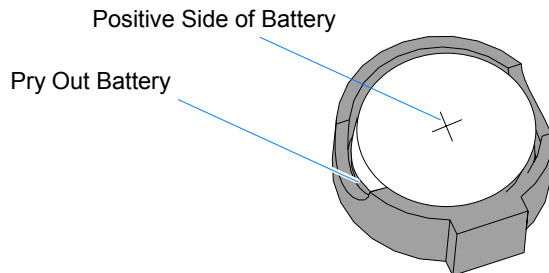
Power Supply Cable Pin-Outs



Clearing the Password

The password can be cleared as follows.

1. Turn the power off and disconnect power from the Terminal.
2. Slide the Electronics Tray out of the terminal cabinet.
3. Locate the Battery (see the board illustrations earlier in this section).
4. Use a small screwdriver and pry the Battery out of the socket.



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5. Wait for about three minutes to clear the CMOS.
6. Replace the battery.
7. Replace the Cover.
8. Run **Setup** and set *defaults*. Set the Date/Time and make any desired special settings.
9. Reassemble the Terminal and turn the power on.
10. Reset the CMOS memory and the password.

Connector Pin-Out Identification

Primary Power (PS1)

Pin	Name	Function
1	+3.3 V	+3.3 volts VCC_3.3
2	+3.3 V	+3.3 volts VCC_3.3
3	GND	Ground
4	+5 V	+ 5 volts Vcc
5	GND	Ground
6	+5 V	+ 5 volts Vcc
7	GND	Ground
8	PWG	Power Good
9	+5 VSB	Standby +5 volts
10	+12 V	+ 12 volts
11	+3.3V	+3.3 volts VCC_3.3
12	-12 V	- 12 volts
13	GND	Ground
14	~REM_EN	Power on(Low Active)
15	GND	Ground
16	GND	Ground
17	GND	Ground
18	-5V	-5 volts -5V
19	+5v	+ 5 volts Vcc
20	+5v	+ 5 volts Vcc

USB Daughter Card Power (CN12)

Pin	Name	Function
1	GND	Ground
2	GND	Ground
3	+5V	+ 5 volts
4	GND	Ground
5	+5V	+ 5 volts
6	+5V	+ 5 volts
7	+3.3V	+3.3 volts
8	GND	Ground
9	+12V	+ 12 volts
10	+12 V	+ 12 volts
11	+24V	+24 volts
12	+24V	+24 volts
13	GND	Ground
14	GND	Ground

USB Daughter Card (CN12)

Pin	Name	Function
1	SYNC	
2	CD_OPEN_A	
3	SDOUT	
4	CD_OPEN_B	
5	ACRST~	

Pin	Name	Function
6	CD_ST_AB	
7	PHONE	
8	REFRESH~	
9	SDIN	
10	CPWOK	
11	BITCLK	
12	SD0	
13	GND	
14	SD1	
15	GND	
16	SD2	
17	GND	
18	SD3	
19	GND	
20	GND	
21	USB_DT1~	
22	USB_DT0~	
23	USB_DT1	
24	USB_DT0	
25	USB_DT3~	
26	USB_DT2~	
27	USB_DT3	
28	USB_DT2	

Front Panel (CN1)

Box Fan

Pin	Signal Name
1	+12V
2	Ground

Speaker

Pin	Signal Name
3	PC_OUT#
4	SPKR_POS

Key

Pin	Signal Name
5	Keyed
6	GND

Power LED

Pin	Signal Name
7	+5V through 330 ohm
8	GREENCTL#

Hard Drive LED

Pin	Signal Name
9	+5V
10	HDLED

ON/OFF

Pin	Signal Name
11	PWRBTN#
12	Ground

Link Integrity LED

Pin	Signal Name
13	LINKLED
14	Ground

Reset

Pin	Signal Name
15	RST
16	Ground

Back Panel I/O**PS/2 Kybd/Mouse (CN1)**

Pin	Signal Name
1	KBDData
2	MDATA
3	Ground
4	Vcc
5	KBClock
6	MCLOCK

Serial COM1 (CN6)

Pin	Signal Name
1	DCD
2	Serial In - (SIN)
3	Serial Out - (SOUT)
4	DTR-
5	GND
6	DSR-
7	RTS-
8	CTS-
9	RI OR +12V for powered RS-232

Serial COM2 (CN5)

Pin	Signal Name
1	DCD
2	Serial In - (SIN)
3	Serial Out - (SOUT)
4	DTR-
5	GND
6	DSR-
7	RTS-
8	CTS-
9	RI

Serial COM3 (CN6)

Pin	Signal Name
1	DCD
2	Serial In - (SIN)
3	Serial Out - (SOUT)
4	DTR-
5	GND
6	DSR-
7	RTS-
8	CTS-
9	+12V For powered RS232

Serial COM4 (CN5)

Pin	Signal Name
1	DCD
2	Serial In - (SIN)
3	Serial Out - (SOUT)
4	DTR-
5	GND
6	DSR-
7	RTS-
8	CTS-
9	+12V for powered RS232

Serial COM5 UPS (CN9)

Pin	Name	Function
1	GND	GND
2	AC_Good	AC is present
3	Batt_Lo	Battery low warning
4	Batt_Sense#	Battery connected
5	UPS_OFF#	Enable UPS

Video Monitor (CN3)

Pin	Signal Name
1	Red
2	Green
3	Blue
4	No Connect
5	Ground
6	Analog Ground
7	Analog Ground
8	Analog Ground
9	+5V
10	Ground
11	No Connect
12	VID_SDA
13	Horizontal Sync.
14	Vertical Sync.
15	VID_SCL

Ethernet (CN2)

Pin	Name	Function
1	TX+	Transmit Pos
2	TX-	Transmit Neg
3	RX+	Receive Pos
4	TERMPLANE	
5	TERMPLANE	
6	RX-	Receive Neg
7	TERMPLANE	
8	TERMPLANE	
9	FRAME GND	
10	FRAME GND	

CPU Fan (CN10)

Pin	Signal Name
1	GND
2	+12V
3	FAN_SENSE

LCD Interface (CN4)

Pin	Signal Name
1	DATA2-
2	DATA2+
3	SHIELD2_4
4	DATA4-
5	DATA4+
6	DDCSCK
7	DDCSDA
8	ANALOG V-SYNC
9	DATA1-
10	DATA1+
11	SHIELD1_3
12	DATA3-
13	DATA3+
14	+5v
15	Return for +5V, V-SYNC H-SYNC(GND)
16	HOTDET
17	DATA0-
18	DATA0+
19	SHIELD0_5
20	DATA5-
21	DATA5+
22	SHIELDCLK
23	CLK+

Pin	Signal Name
24	CLK-
C1	ANALOG RED
C2	ANALOG GREEN
C3	ANALOG BLUE
C4	ANALOG H_SYNC
C5	ANALOG GND (R,G&B return)

Parallel (CN3)

Signal Name	Pin	Pin	Signal Name
STROBE-	1	14	AUTO FEED#
Data Bit 0	2	15	ERROR#
Data Bit 1	3	16	INIT#
Data Bit 2	4	17	SLCT IN#
Data Bit 3	5	18	Ground
Data Bit 4	6	19	Ground
Data Bit 5	7	20	Ground
Data Bit 6	8	21	Ground
Data Bit 7	9	22	Ground
ACK#	10	23	Ground
BUSY	11	24	Ground
PE (Paper End)	12	25	Ground
SLCT	13		

IDE-1/IDE-2 (CN17, CN14)

Signal Name	Pin	Pin	Signal Name
Reset IDE	1	2	Ground
Host Data 7	3	4	Host Data 8
Host Data 6	5	6	Host Data 9
Host Data 5	7	8	Host Data 10
Host Data 4	9	10	Host Data 11
Host Data 3	11	12	Host Data 12
Host Data 2	13	14	Host Data 13
Host Data 1	15	16	Host Data 14
Host Data 0	17	18	Host Data 15
Ground	19	20	Key
DDRQ0 (DDRQ1)	21	22	Ground
I/O Write#	23	24	Ground
I/O Read#	25	26	Ground
IOCHRDY	27	28	Pull Down
DDACK0 (DDACK1)#	29	30	Ground
IRQ14 (IRQ15)	31	32	I/O CS16
Addr 1	33	34	N/C
Addr 0	35	36	Addr 2
Chip Select 1P (1S)#	37	38	Chip Select 3P (3S)#
Activity#	39	40	Ground

Flexible Diskette (CN18)

Signal Name	Pin	Pin	Signal Name
Ground	1	2	DRVDEN0
Ground	3	4	Reserved
Key	5	6	DRVDEN1
Ground	7	8	Index#
Ground	9	10	Motor Enable 1#
Ground	11	12	Drive Select 0#
Ground	13	14	Drive Select 1#
Ground	15	16	Motor Enable 0#
Ground	17	18	DIR#
Ground	19	20	STEP#
Ground	21	22	Write Data#
Ground	23	24	Write Gate#
Ground	25	26	Track 0#
Ground	27	28	Write Protect#
Ground	29	30	Read Data#
Ground	31	32	HDSEL
Ground	33	34	DSKCHG Change#

PCI Riser Card (PCI1)

Signal Name	Pin	Pin	Signal Name
-12V	61B1	1A1	NC
CLK2	62B2	2A2	+12V
GND	63B3	3A3	GNT1#
TD0	64B4	4A4	REQ1#
+5V	65 B5	5 A5	+5V
+5V	66B6	6A6	INTA#
INTB#	67B7	7A7	INTC#
INTD#	68B8	8A8	+5V
PRSNT#1	69B9	9A9	RESERVED
RESERVED	70B10	10A10	+5V
PRSNT#2	71 B11	11 A11	RESERVED
GND	72B12	12A12	GND
GND	73B13	13A13	GND
RESERVED	74B14	14A14	RESERVED
GND	75B15	15A15	RST#
CLK1	76B16	16A16	+5V
GND	77B17	17A17	GNT
REQ#	78B18	18A18	GND
+5V	79B19	19A19	PME
AD31	80B20	20A20	AD30
AD29	81B21	21A21	+3.3V
GND	82B22	22A22	AD28
AD27	83B23	23A23	AD26

Signal Name	Pin	Pin	Signal Name
AD25	84B24	24A24	GND
+3.3V	85 B25	25 A25	AD24
C_BE#3	86B26	26A26	IDSEL
AD23	87B27	27A27	+3.3V
GND	88B28	28A28	AD22
AD21	89B29	29A29	AD20
AD19	90B30	30A30	GND
+3.3V	91 B31	31 A31	AD18
AD17	92B32	32A32	AD16
C_BE#2	93B33	33A33	+3.3V
GND	94B34	34A34	FRAME#
IRDY#	95B35	35A35	GND
+3.3V	96B36	36A36	TRDY
DEVSEL#	97B37	37A37	GND
GND	98B38	38A38	STOP
LOCK#	99B39	39A39	+3.3V
PERR#	100B40	40A40	SDONE
+3.3V	101B41	41A41	SBO
SERR#	102B42	42A42	GND
+3.3V	103 B43	43A43	PAR
C_BE#1	104 B44	44 A44	AD15
AD14	105 B45	45A45	+3.3V
GND	106 B46	46 A46	AD13
AD12	107 B47	47 A47	AD11

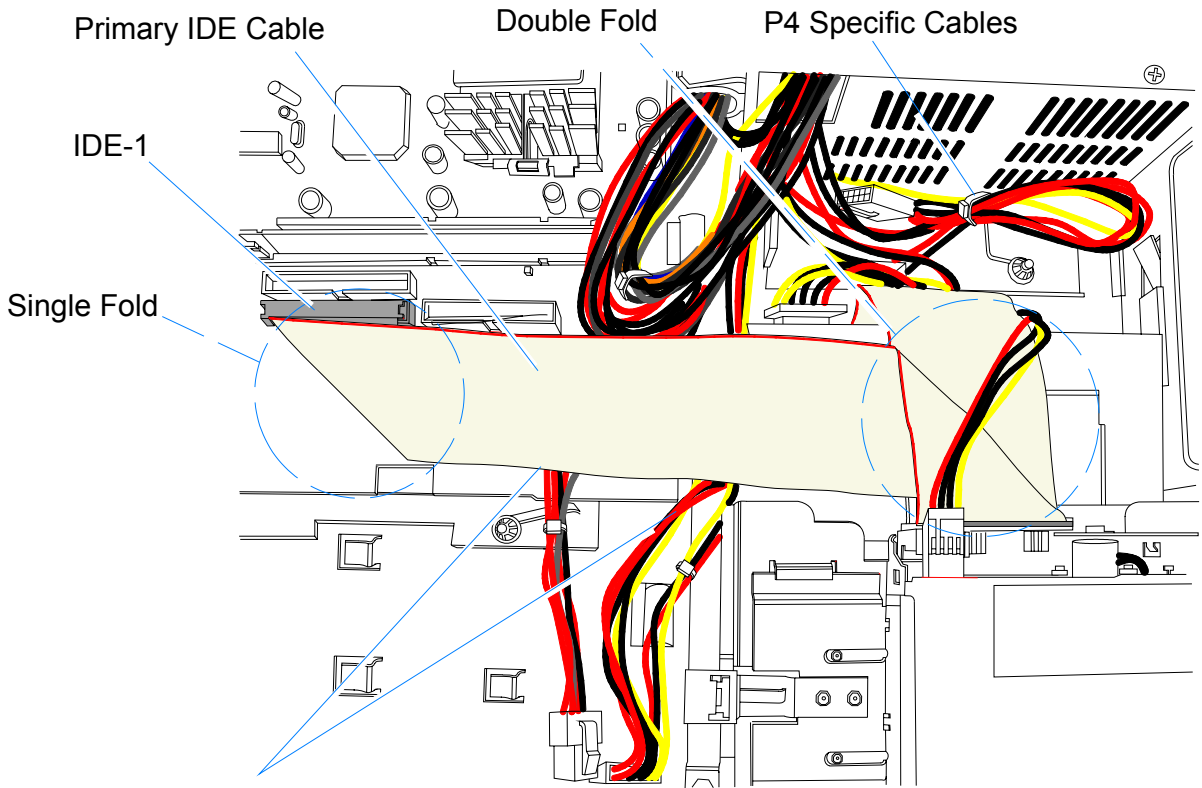
Signal Name	Pin	Pin	Signal Name
AD10	108 B48	48 A48	GND
GND	109 B49	49 A49	AD9
CON KEY	B50	A50	CON KEY
CON KEY	B51	A51	CON KEY
AD8	110 B52	50A52	C_BE#0
AD7	111 B53	51A53	3.3V
+3.3V	112 B54	52A54	AD6
AD5	113B55	53 A55	AD4
AD3	114B56	54 A56	GND21
GND	115 B57	55 A57	AD2
AD1	116 B58	56 A58	AD0
+5V	117 B59	57 A59	+5V
ACK64#	118 B60	58 A60	REQ64#
+5V	119 B61	59A61	+5V
+5V	120 B62	60A62	+5V

PCI Riser Card

Signal Name	Pin	Pin	Signal Name
GND	1B1	1A1	PGNT~(1)
PCICLK1	2B2	2A2	GND
GND	3B3	3A3	PGNT~(2)
PCI_REQ1#	4B4	4A4	GND
GND	5 B5	5 A5	PCICLK3
PCI_CLK2	6B6	6A6	RISER_ID1
GND	7B7	7A7	RESVD
PCI_REQ2#	8B8	8A8	RISER_ID2
GND	9B9	9A9	NOGO
PC/PCI_DREQ#	10B10	10A10	+12v
PC/PCI_DGNT#	11 B11	11A11	SER_IRQ

Chapter 4: Cable Routing Guide

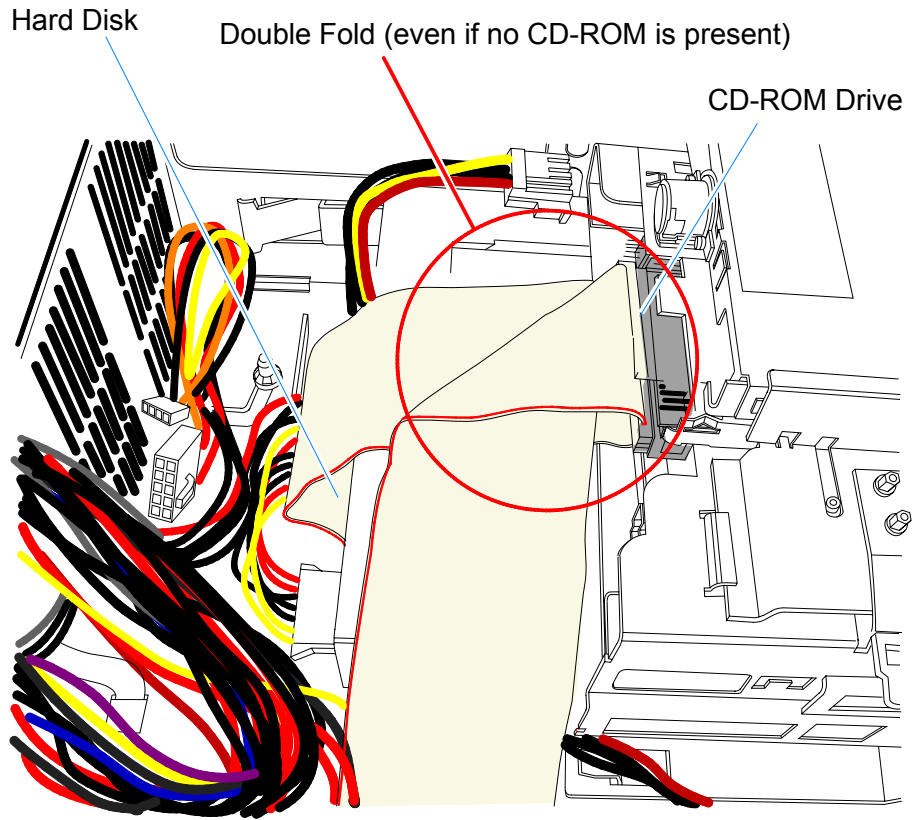
Primary IDE Cable



UPS and Secondary Hard Disk Cables
are Routed Under IDE Cable

20517

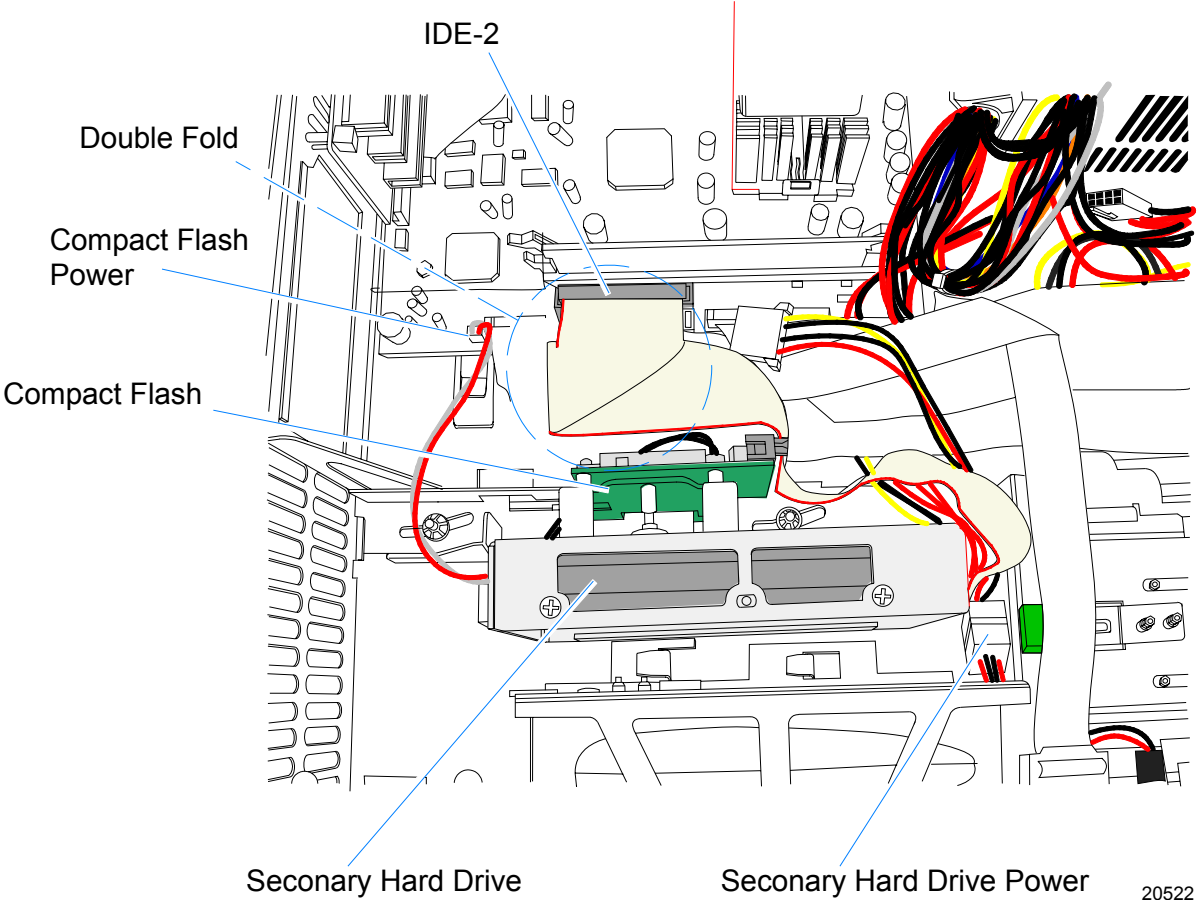
Primary IDE Cable (Top view)



20516

Primary IDE Cable (Side view)

Secondary IDE Cable

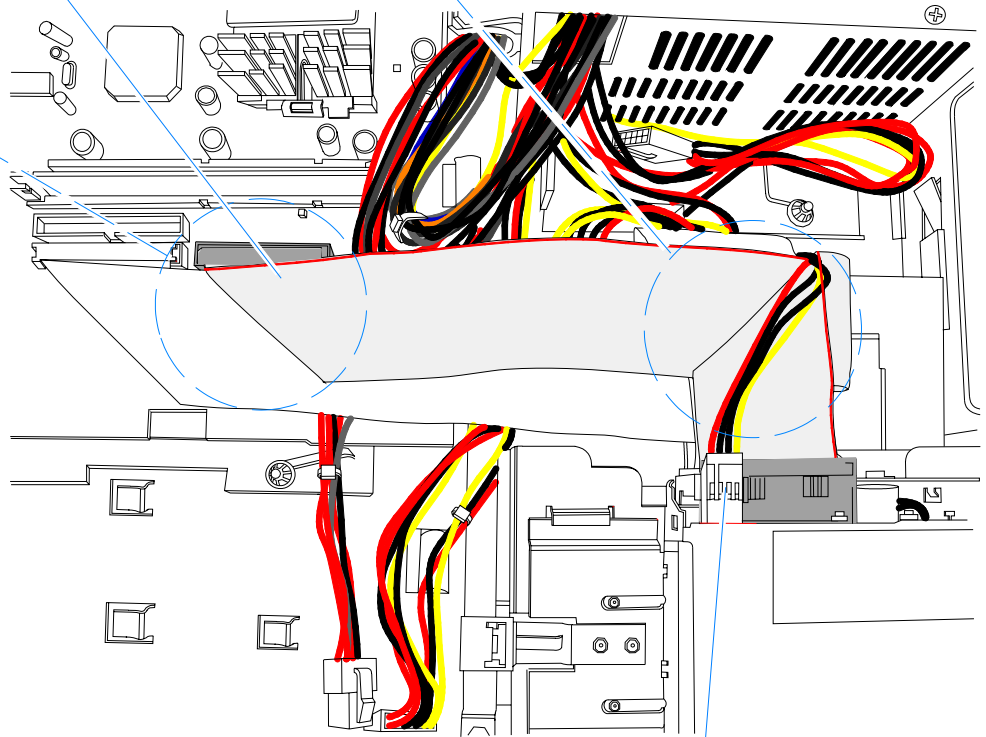


Flex Diskette Cable

Flex Diskette I/F Cable

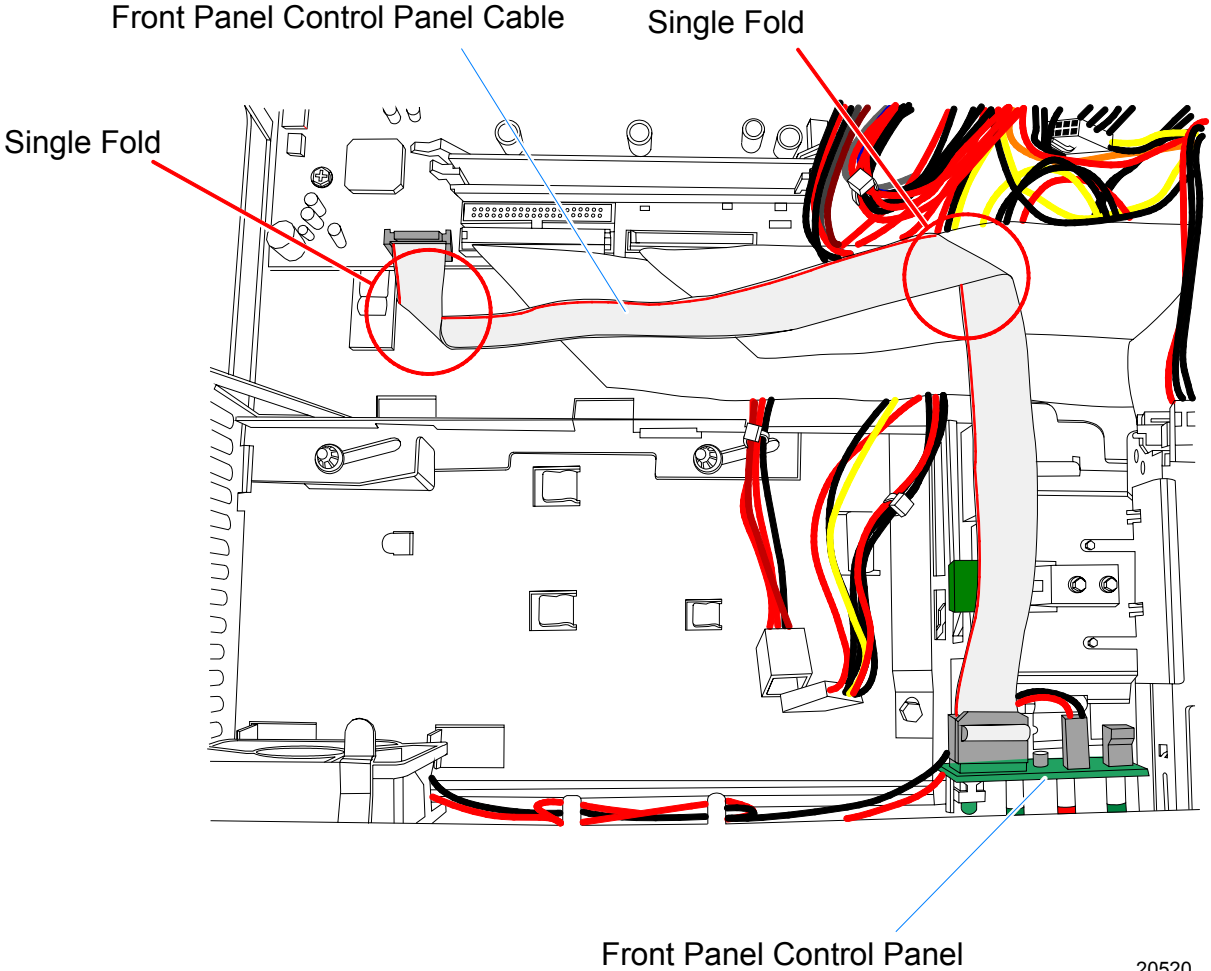
Double Fold

Single Fold

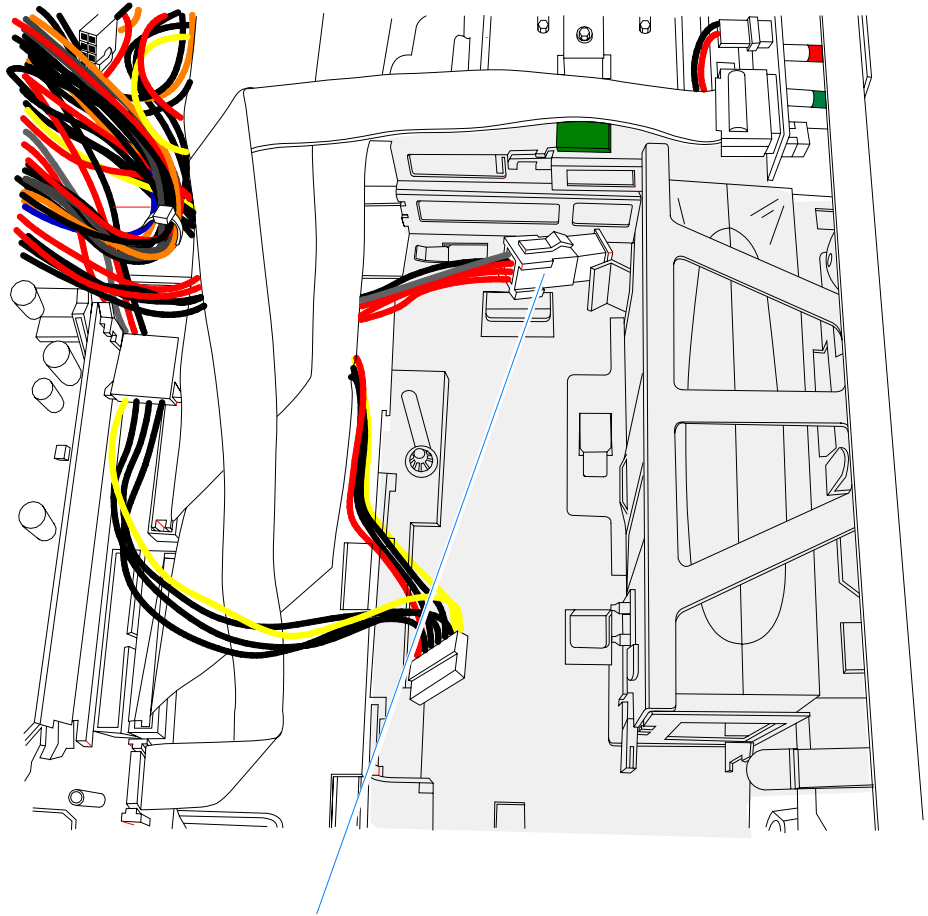


Flex Diskette Power Cable 20517a

Front Panel Cables

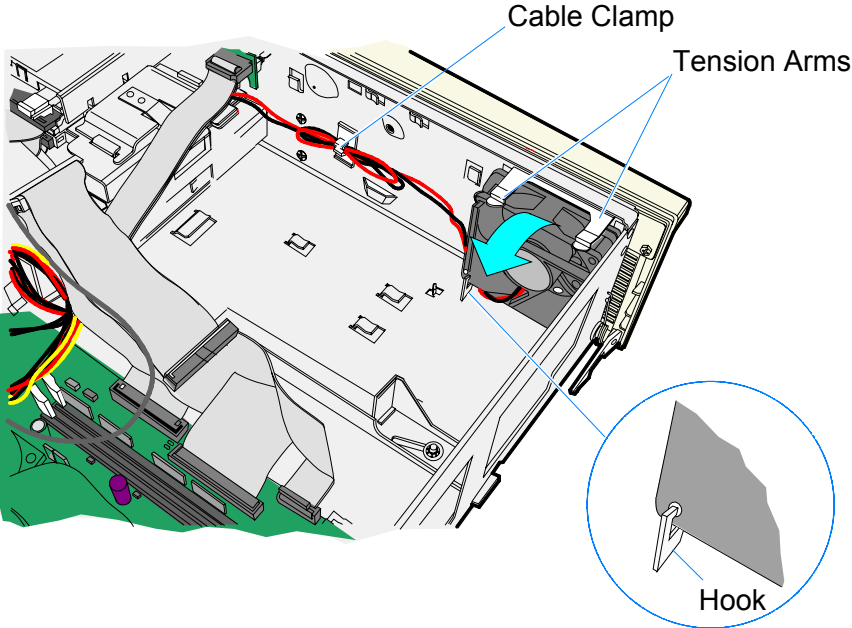


UPS Battery Cables



UPS Battery Power Cable

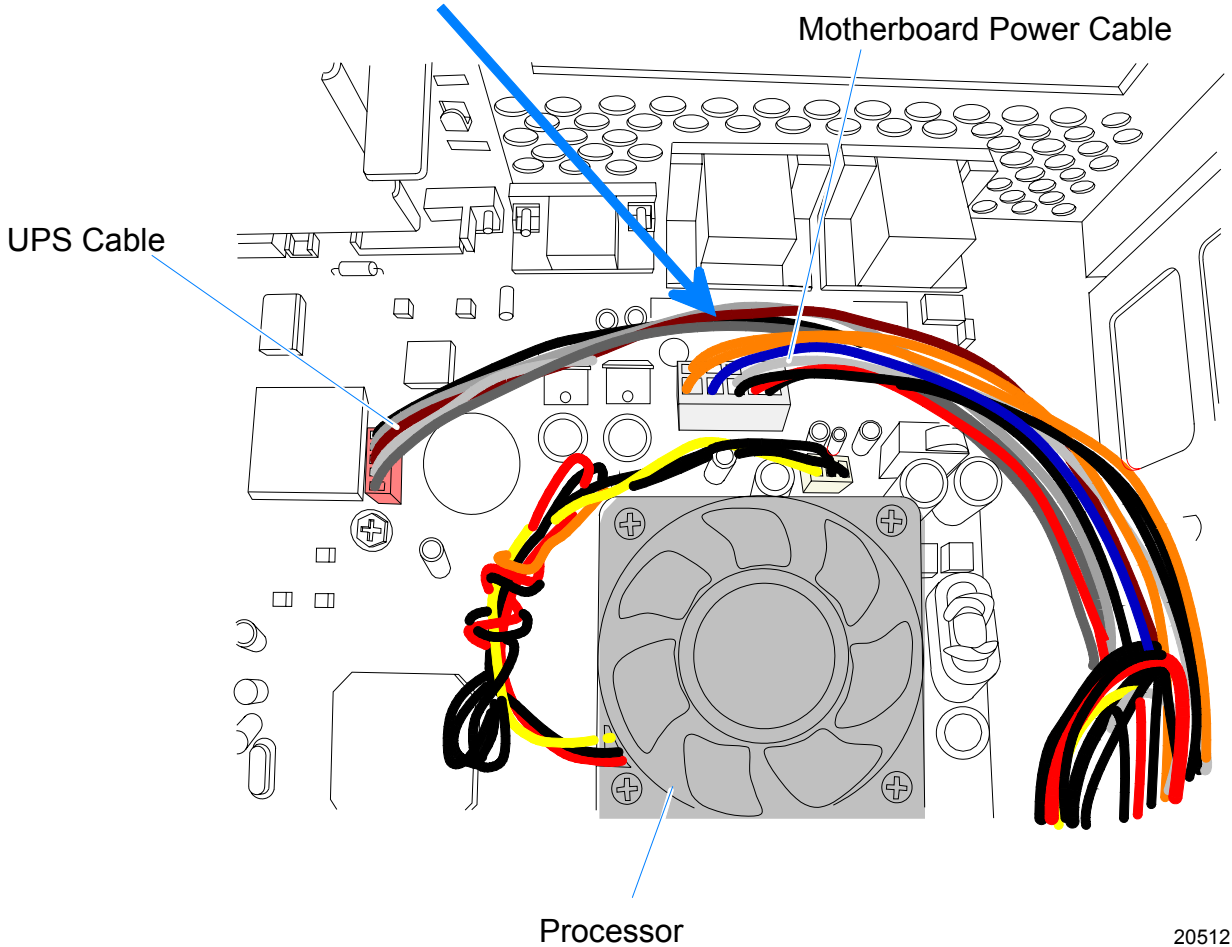
Fan Cable



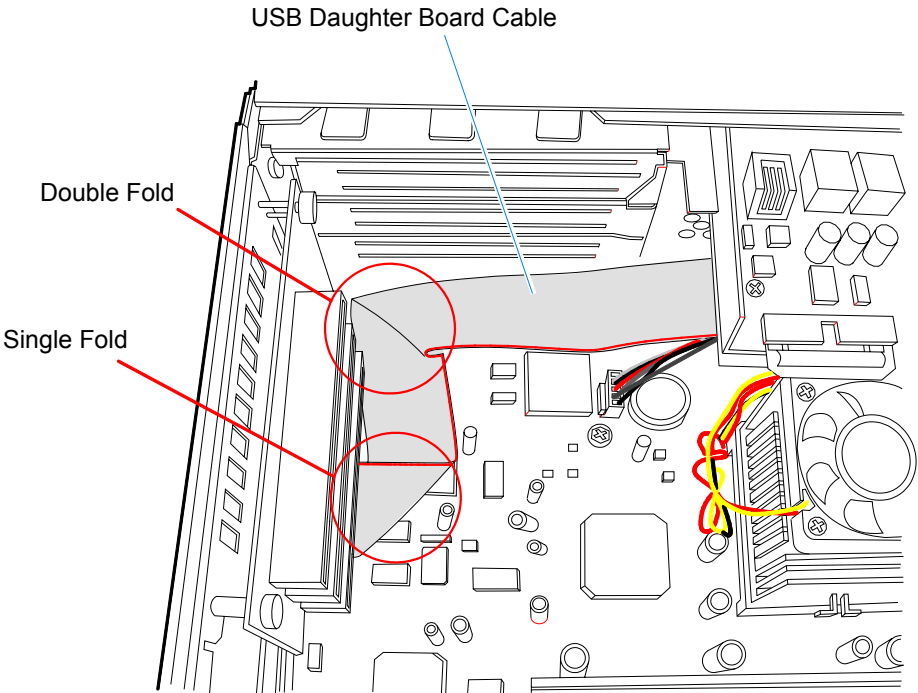
20384

UPS Power Cable

Route the UPS Cable behind Motherboard Power Cable to avoid the processor heat sink.

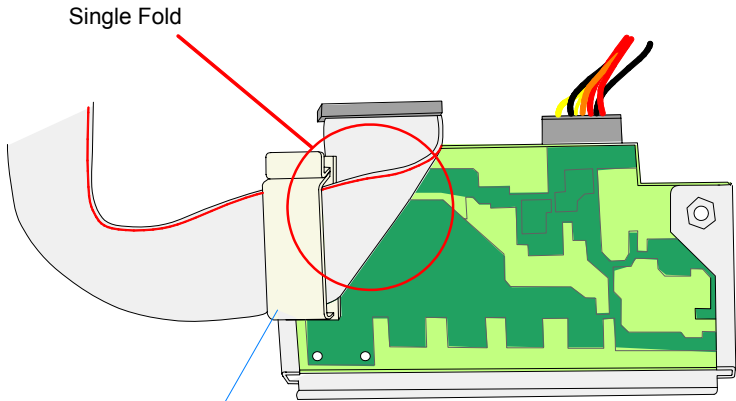


USB Daughter Card Cable



20510

The USB Cable is secured on the bottom of the card with an Adhesive Cable Clamp.



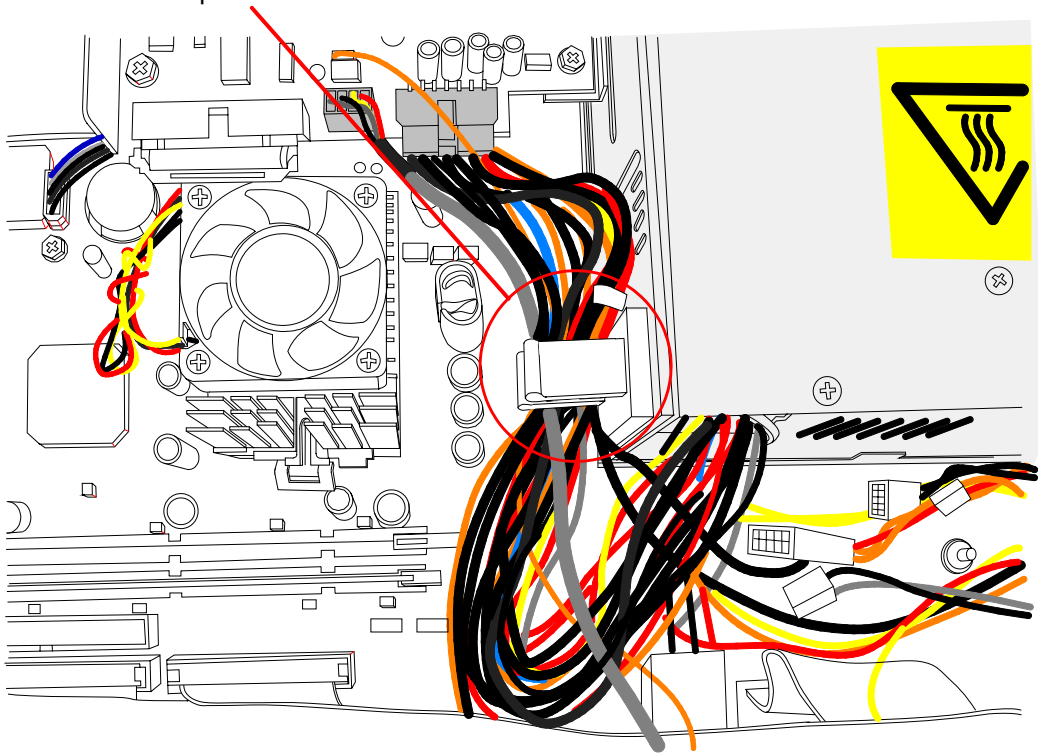
Adhesive Cable Clamp (Bottom side of USB Card)

20511

Power Supply Harness Clamp

Clamp the following harnesses to the Cable Clamp next to the Power Supply:

- Motherboard Power Supply Harness
- UPS Harness
- USB Daughter Card Harness
- Audio Cable
- PC Beep Cable



Appendix A: Feature Kits

This section contains a comprehensive list of the available hardware Feature Kits that can be installed in the customer environment. Kit installation instructions (for those requiring instruction) are available on the Information Products web sites.

- *Internet:* <http://www.info.ncr.com>
- *NCR Intranet:* <http://infoetail.atlantaga.ncr.com>

To locate the installation guides on these sites:

1. Select **General Search**.
2. Select the **Kits** icon.
3. In the **Title** field, enter the *Kit Title*.

Example: *Memory*

or

In the **Product ID** field, enter the *Kit Number*.

Example: *7458-K141*

1. Select **Search**.

The file can be viewed online by left-mouse clicking on the pub title, or if you prefer to download the entire file you can right-mouse click on the title and then a *Save target as*.

If you aren't sure of the title or number you can display all kits associated with a terminal product class by:

1. In the **Class** drop-down list, enter the *Class* of the terminal.

Example: *7458*

2. Select **Search**.

Feature Kit List

Part Number	Description
3212-K170	Standard Height 4-Port PCI Adapter Card
3212-K171	Standard Height 2-Port PCI Adapter Card
7456-K132	128MB DIMM memory upgrade (PC-133)
7456-K133	256MB DIMM memory upgrade (PC-133)
7456-K154	256MB Compact Flash Memory
7456-K350	PCI VGA Video Card
7458-K140	Internal CD ROM Drive (G11)
7458-K141	Internal CD ROM Drive (CG1)
7458-K154	256MB Compact Flash Memory
7458-K160	Removable Hard Disk Kit (G11)
7458-K161	Removable Hard Disk Kit (CG1)
7458-K165	Internal Second Hard Disk Kit (CG1)
7458-K172	PCI 4-Port Serial Expansion
7458-K181	UPS Battery
7458-K300	7458 Integration Tray (G11)
7458-K305	7458 Integration Tray (CG1)
7458-K310	7458 Integration Tray Accessories (G11)
7458-K315	7458 Integration Tray Accessories (CG1)

Appendix B: Hardware Specifications

Performance Levels

Processor	850 MHz Celeron	1 GHz P III
System Bus	100 MHz	133 MHz
Cache	128 KB	256 KB

Interrupts

IRQ	System Resource
NMI	I/O Channel Check
0	Reserved, System Timer
1	Reserved, Keyboard buffer full
2	Reserved, Cascade interrupt
3	Serial Port 2
4	Serial Port 1
5	Serial Ports 3 & 4
6	Reserved, Floppy
7	Parallel Port 1(Avail if disable)
8	Real Time Clock
9	
10	Serial Port 3
11	Serial Port 4
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